HIGHLIGHTS

REVISION NO. 33 Jun 01/10

Pages which have been revised are outlined below, together with the Highlights of the Revision

CH/SE/SU C PAGES	REASON FOR CHANGE	EFFECTIVITY
CHAPTER 32		
L.E.P. 1-12	Revised to Reflect this revision indicating new,revised, and/or deleted pages	
T. OF C. 3- 16	Revised to reflect this revision	
32-00-00 402, 430-432	Minor additions and amplification **DELETED NOTE AND ADDED STEP TO CHECK GREEN INDICATOR** Reprinted	
32-00-00 501- 502	Minor additions and amplification **ADDED STEP C.**	
32-11-19 401	Minor, non technical corrections **REPLACED HIGHTLY BY LIGHTLY**	
32-21-00 301- 306	New Topic/New Configuration Mod.0001X0057 incorporated **TECHNICAL PUBLICATION-BASIC MODIFICATION.** Mod.0001X0567 incorporated **TECHNICAL PUBLICATION-BASIC MODIFICATION.**	
32-21-00 615- 616, 619	**SB 32-2132 01** incorporated **LANDING GEAR - NOSE LANDING GEAR SHOCK ABSORBER / BARREL ATTACHMENT - INSPECTION OF FASTENERS.** **SB 32-2135** incorporated **LANDING GEAR - NOSE LANDING GEAR LEG - IMPROVEMENT OF THE SHOCK ABSORBER ATTACHMENT AT THE BARREL UPPER PART.**	
32-22-17 401- 404	New Topic/New Configuration Mod.3996S4930 incorporated **NOSE GEAR DOOR GROUND OPENING MECHANISM - PROVIDE CONTROL ACCESSIBLE FROM OUTSIDE THE A/C ONLY**	
32-30-00	Minor additions and amplification	

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CH/SE/SU C PAGES	REASON FOR CHANGE	EFFECTIVITY
602, 604	CORRECTED WORDING	
32-31-00	Minor additions and amplification	
69- 72	CORRECTED VIEW A	
32-31-00	Effectivity updated at the bottom of the page	
201- 203, 205- 207	Mod.0001X0567 incorporated TECHNICAL PUBLICATION-BASIC MODIFICATION. SIL32-0055 01 removed No definition Minor additions and amplification REVISED REASON FOR THE JOB TO BE LINE WITH MPD	
32-31-00	New Topic/New Configuration	
401- 404	Mod.0001X0567 incorporated TECHNICAL PUBLICATION-BASIC MODIFICATION.	
32-31-00	Minor additions and amplification	
521- 522	ADDED A CAUTION	
32-31-16	Minor additions and amplification	
401- 402, 409- 411	ADDED TITLE	
32-33-00	Minor additions and amplification	
518- 522	ADDED A CAUTION	
32-41-00	Minor additions and amplification	
629- 632	REVISED NOTE RELATED TO NORMAL AND UNEVEN WEAR	
32-42-00	Effectivity updated at the bottom of the page	
507- 510, 515- 537	SB 32-2102 06 incorporated LANDING GEAR - MLG - INSTALL MHB CARBON BRAKES AND WHEELS (49X17 20 TYRES) Minor additions and amplification ADDED CIRCUIT BREAKER 95GG	
32-42-12	Minor additions and amplification	
302	CORRECTED WORDING	
32-42-27	Minor, non technical corrections	
409	REVISED LOCATION OF CIRCUIT BREAKER 1GW	
32-42-27	Minor additions and amplification	
604- 605	ADDED STEPS TO CHECK BRAKE UNIT	

CH/SE/SU C PAGES	REASON FOR CHANGE	EFFECTIVITY
32-42-57 412- 413	Minor additions and amplification **REVISED WORDING**	
32-42-66 401- 403	Layout Improved or Effectivity Updated	
32-44-00 601- 602	New Topic/New Configuration Mod.0001X0567 incorporated **TECHNICAL PUBLICATION-BASIC MODIFICATION.**	
32-47-00 901, 903	Minor, non technical corrections **REVISED LOCATION OF CIRCUIT BREAKER 1GW**	
32-47-13 401	Minor, non technical corrections **REVISED LOCATION OF CIRCUIT BREAKER 1GW**	
32-51-00 501- 502, 504, 506- 522	Layout Improved or Effectivity Updated	
32-51-00 901- 913	Minor additions and amplification	
32-61-00 901- 903	New Topic/New Configuration Mod.0001X0057 incorporated **TECHNICAL PUBLICATION-BASIC MODIFICATION.**	

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CHAPTER 32

LANDING GEAR

LIST OF EFFECTIVE PAGES

N, R or D indicates pages which are New, Revised or Deleted respectively
Remove and insert the affected pages and complete the Record of Revisions and the Record of Temporary Revisions as necessary

CH/SE/SU	C	PAGE	DATE
RECORD			
OF TEMP.			
REVISION			
L.E.P.	R	1-12	Jun01/10
T. of C.		1	Dec01/06
T. of C.		2	Jun01/08
T. of C.	R	3	Jun01/10
T. of C.	R	4	Jun01/10
T. of C.	R	5	Jun01/10
T. of C.	R	6	Jun01/10
T. of C.	R	7	Jun01/10
T. of C.	R	8	Jun01/10
T. of C.	R	9	Jun01/10
T. of C.	R	10	Jun01/10
T. of C.	R	11	Jun01/10
T. of C.	R	12	Jun01/10
T. of C.	R	13	Jun01/10
T. of C.	R	14	Jun01/10
T. of C.	R	15	Jun01/10
T. of C.	R	16	Jun01/10
32-00-00		1	Dec01/90
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32-00-00		5	Dec01/90
32-00-00		6	Dec01/90
32-00-00		7	Dec01/90
32-00-00		8	Jun01/04
32-00-00		9	Dec01/90
32-00-00		10	Jun01/04
32-00-00		11	Jun01/04
32-00-00		12	Jun01/04
32-00-00		13	Jun01/04
32-00-00		14	Jun01/04
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32-00-00		37	Jun01/04
32-00-00		38	Jun01/04
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32-00-00	R	402	Jun01/10
32-00-00		403	Dec01/06
32-00-00		404	Jun01/02
32-00-00		405	Dec01/06
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32-00-00		427	Jun01/06
32-00-00		428	Jun01/06
32-00-00		429	Jun01/09
32-00-00	R	430	Jun01/10
32-00-00	R	431	Jun01/10
32-00-00	R	432	Jun01/10
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32-00-00	R	502	Jun01/10
32-00-00		503	Mar01/03
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32-00-00		506	Dec01/90
32-00-00		701	Dec01/90
32-00-00		702	Dec01/96
32-00-00		703	Dec01/90
32-00-00		704	Jun01/96
32-00-00		705	Dec01/90
32-00-00		706	Dec01/90

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32-11-27		406	Jun01/08
32-11-27		801	Jun01/04
32-11-27		802	Dec01/90
32-11-27		803	Dec01/90
32-11-27		804	Dec01/90
32-11-28		401	Jun01/04

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32-11-28		403	Dec01/90
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32-12-11		507	Dec01/92
32-12-11		901	Jun01/96
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32-21-14		409	Jun01/04
32-21-14		410	Jun01/02
32-21-14		411	Jun01/04
32-21-14		412	Jun01/04
32-21-14		413	Jun01/02
32-21-14		414	Jun01/02
32-21-14		415	Jun01/04
32-21-14		416	Jun01/02

CH/SE/SU	C	PAGE	DATE
32-21-14		417	Jun01/02
32-21-14		418	Jun01/04
32-21-14		419	Jun01/02
32-21-14		420	Jun01/04
32-21-14		421	Jun01/07
32-21-14		422	Jun01/04
32-21-14		423	Jun01/07
32-21-14		424	Jun01/07
32-21-14		601	Dec01/90
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32-21-15		801	Jun01/04
32-21-15		802	Dec01/90
32-21-15		803	Dec01/96
32-21-15		804	Dec01/96
32-21-43		401	Dec01/97
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32-31-00	R	70	Jun01/10	32-31-00	R	203	Jun01/10	32-31-00		801	Jun01/06
32-31-00	R	71	Jun01/10	32-31-00		204	Jun01/95	32-31-00		802	Jun01/06
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32-33-26		408	Dec01/90	32-41-00		620	Jun01/04	32-42-00		34	Dec01/90
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32-42-00		43	Dec01/90	32-42-00		94	Jun01/04	32-42-00		904	Mar01/03
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32-42-00		47	Dec01/90	32-42-00		303	Dec01/90	32-42-00		908	Jun01/03
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32-42-00		64	Jun01/04	32-42-00		511	Jun01/04	32-42-16		402	Jun01/02
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32-42-00		80	Jun01/04	32-42-00	R	527	Jun01/10	32-42-27		401	Jun01/06
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32-42-00		82	Jun01/04	32-42-00	R	529	Jun01/10	32-42-27		403	Jun01/09
32-42-00		83	Jun01/04	32-42-00	R	530	Jun01/10	32-42-27		404	Jun01/07
32-42-00		84	Jun01/04	32-42-00	R	531	Jun01/10	32-42-27		405	Dec01/90
32-42-00		85	Jun01/04	32-42-00	R	532	Jun01/10	32-42-27		406	Jun01/09
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32-42-27		411	Jun01/09	32-42-57	R	413	Jun01/10	32-43-00		305	Sep01/91
32-42-27		412	Jun01/93	32-42-66	R	401	Jun01/10	32-43-00		306	Jun01/05
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32-42-27		601	Dec01/90	32-42-66	R	403	Jun01/10	32-43-00		502	Jun01/06
32-42-27		602	Jun01/04	32-42-72		401	Jun01/03	32-43-00		503	Jun01/06
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32-42-27	R	604	Jun01/10	32-42-83		401	Jun01/04	32-43-00		505	Jun01/06
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LANDING GEAR

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UNIT (11GG)				
Removal/Installation			401	ALL
SERVOVALVE (13GG TO 20GG) AND (75GG TO 78GG)	32-42-48			
Removal/Installation			401	ALL
Adjustment/Test			501	ALL
Operational Test of Normal Servo-Valve 13GG to 20GG)			501	ALL
Functional Test of Normal Servo-Valve (13GG to 20GG)			503	ALL
Functional Test of Alternate Servovalve (75GG to 78GG)			504	ALL
MAIN GEAR TACHOMETER (21GG TO 28GG)	32-42-57			
Removal/Installation			401	ALL
NOSE GEAR TACHOMETER	32-42-66			
Removal/Installation			401	ALL
BRAKE SYSTEM CONTROL UNIT (29GG)	32-42-72			
Removal/Installation			401	ALL
NLG IN-FLIGHT BRAKE BAND	32-42-83			
Removal/Installation			401	ALL
Deactivation/Reactivation			901	ALL
Ref. MMEL Section 1-32, Item 4 (Nose Landing Gear Wheel Braking Pads)			901	ALL
Nose Wheel Brake Band/Spring Assy Deactivation			901	ALL
Nose Wheel Brake Band/Spring Assy Reactivation			904	ALL
ALTERNATE BRAKING WITH ANTI SKID (ALTN/ON)	32-43-00			
Description and Operation			1	ALL
General			1	ALL
Component Location			1	ALL
Auxiliary Low Pressure Control System			11	ALL
Component Description			11	ALL
Replenishing and Bleeding			17	ALL
Brake System Component Description			17	ALL
Automatic Selector (Alternate Mode)			17	ALL
Dual Shuttle Valve			24	ALL
Alternate Brake System Pressure Transmitters and Brake Yellow Pressure Triple Indicator			24	ALL
Alternate Brake System Servo-valves, Safety Valves and Return Accumulators			24	ALL
Operation - Pedal Artificial Feel			28	ALL
Servicing			301	ALL
Bleeding of Alternate Brake System From the Flight Compartment			302	ALL

SUBJECT	CH/SE/SU	C	PAGE	EFFECTIVITY
Bleeding of Alternate Brake System at Brake Units			303	ALL
Low Pressure Brake System Replenishing and Bleeding			306	ALL
Adjustment/Test			501	ALL
Operational Test			501	ALL
Functional Test			504	ALL
System Test			510	ALL
Test			901	ALL
Ref. MMEL Sect. 1.32 Item 16			901	ALL
Reason for the Job			901	ALL
Equipment and Materials			901	ALL
Procedure			901	ALL
Test			902	ALL
HYDRAULIC RESERVOIR (4300)	32-43-11			
Removal/Installation			401	ALL
Inspection/Check			601	ALL
MASTER CYLINDER (4301 - 4302)	32-43-12			
Removal/Installation			401	ALL
ALTERNATE BRAKE DISTRIBUTION DUAL VALVE (3301)	32-43-14			
Removal/Installation			401	ALL
Inspection/Check			601	ALL
ALTERNATE BRAKE YELLOW MANIFOLD (3312-3313)	32-43-15			
Removal/Installation			401	ALL
ALTERNATE BRAKING WITHOUT ANTI SKID (ALTN/OFF)	32-44-00			
Description and Operation			1	ALL
General			1	ALL
Component Location			1	ALL
Component Description			8	ALL
Brake Yellow Power Accumulators and Brake Yellow Pressure Relief Valve			8	ALL
Pressure Relief and Check Valves			10	ALL
Operation			10	ALL
Adjustment/Test			501	ALL
Operational Test			501	ALL
Functional Test			501	ALL
Inspection/Check			601	ALL
BRAKE ACCUMULATOR (3125-3126)	32-44-11			
Removal/Installation			401	ALL
Deactivation/Reactivation			901	ALL
Ref. MMEL Section 1-32, Item 14 (Yellow Brake System)			901	ALL
Brake Accumulator System Deactivation			901	ALL
PRESSURE GAGE - ACCUMULATOR (3128, 3130)	32-44-14			
Removal/Installation			401	ALL

SUBJECT	CH/SE/SU	C	PAGE	EFFECTIVITY
PRESSURE RELIEF VALVE (3067)	32-44-15			
Removal/Installation			401	ALL
BRAKE YELLOW PRESSURE TRANSMITTER 72GG/ 73GG	32-44-18			
Removal/Installation			401	ALL
INDICATOR - BRAKE YELLOW PRESSURE TRIPLE (71GG)	32-44-19			
Removal/Installation			401	ALL
BRAKE YELLOW ACCUMULATOR PRESSURE TRANSMITTER (74GG)	32-44-22			
Removal/Installation			401	ALL
PARKING BRAKE	32-45-00			
Description and Operation			1	ALL
General			1	ALL
Component Location			1	ALL
Component Description			9	ALL
PARKING BRAKE Control Handle and			9	ALL
Control Cables			9	ALL
Parking Brake Selector			9	ALL
Parking Brake Operated Valve			9	ALL
Parking Brake Pressure Limiter			9	ALL
Operation and Indicating			9	ALL
Adjustment/Test			501	ALL
Adjustment			501	ALL
Operational Test			507	ALL
System Test			508	ALL
Inspection/Check			601	ALL
Control Cables			601	ALL
Pulleys			606	ALL
PARKING BRAKE CONTROL HANDLE (7GG)	32-45-11			
Removal/Installation			401	ALL
PARKING BRAKE SELECTOR (3309)	32-45-12			
Removal/Installation			401	ALL
PARKING BRAKE OPERATED VALVE (3293)	32-45-14			
Removal/Installation			401	ALL
PARKING BRAKE PRESSURE LIMITER (3292)	32-45-15			
Removal/Installation			401	ALL
DUAL SHUTTLE VALVE (3294)	32-45-16			
Removal/Installation			401	ALL
PARKING BRAKE CONTROL LINKAGE	32-45-17			
Removal/Installation			401	ALL
Cables			401	ALL
PARKING BRAKE QUADRANT	32-45-19			
Removal/Installation			401	ALL
BRAKE SYSTEM TEMPERATURE	32-47-00			
Description and Operation			1	ALL
General			1	ALL
Component Location			1	ALL
Description and Operation			3	ALL
Temperature Sensor			3	ALL

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SUBJECT	CH/SE/SU	C	PAGE	EFFECTIVITY
Compensators			3	ALL
Brake Temperature Detection Unit			3	ALL
Component Location			3	ALL
Principle of Operation			3	ALL
Test			9	ALL
Selection Straps			9	ALL
Temperature Sensor-to-Detection Unit Connections			9	ALL
Adjustment/Test			501	ALL
Operational Test			501	ALL
Functional Test			504	ALL
System Test			507	ALL
DEACTIVATION/REACTIVATION			901	ALL
Ref. MMEL Section 1-32, Item 13. (Brake Hot).			901	ALL
Ref. MMEL Sect. 1-32, Item 25a (Brake Temperature)			901	ALL
Brake Temperature Sensor Deactivation			901	ALL
Brake Temperature Sensor Reactivation			903	ALL
COMPENSATION UNIT	32-47-13			
Removal/Installation			401	ALL
Equipment and Materials			401	ALL
Procedure			401	ALL
BRAKE TEMPERATURE DETECTOR UNIT (16GW)	32-47-25			
Removal/Installation			401	ALL
BRAKE COOLING	32-48-00			
Description and Operation			1	ALL
General			1	ALL
Component Location			1	ALL
Mechanical Installation			3	ALL
Electrical Installation			3	ALL
Electrical Installation			6	101-200,
Adjustment/Test			501	ALL
Operational Test			501	ALL
Functional Test			503	ALL
System Test			504	ALL
Deactivation/Reactivation			901	ALL
BRAKE FAN (9GS TO 16GS)	32-48-11 01			
Removal/Installation			401	ALL
Impeller			401	ALL
Fan Motor			405	ALL
BRAKE FAN (9GS TO 16GS)	32-48-11 02			
Removal/Installation			401	101-200,
Impeller			401	101-200,
Fan Motor			404	101-200,
STEERING	32-51-00			
Description and Operation			1	ALL
General			1	ALL
Component Location			1	ALL

	SUBJECT	CH/SE/SU	C	PAGE	EFFECTIVITY
	Mechanical Control - Linkage - Coupler			8	ALL
	General			8	ALL
	Steering Via Control Handwheels			8	ALL
	Steering via Rudder Pedals			8	ALL
	Steering Control Coupler			8	ALL
	Hydraulic Control - Control Valve - Actuating Cylinders			8	ALL
	General			8	ALL
	Operation			13	ALL
	Electrical Functions			16	ALL
	Description			16	ALL
	Operation			16	ALL
	Characteristics			16	ALL
	Removal/Installation			401	ALL
	Removal/Installation of Cable on Nose Landing Gear			402	ALL
	Removal/Installation of Steering Control (Section in avionics compartment)			409	ALL
	Adjustment of Cables Between Distributor Actuating Rocker on Nose Gear Shock Strut and Pulley Assembly			411	ALL
	Control Linkage			413	ALL
	Adjustment/Test			501	ALL
	Adjustment of Steering Control			501	ALL
	Operational Test			509	ALL
	Functional Test			511	ALL
	System Test			517	ALL
	Inspection/Check			601	ALL
	Check of Steering Control			601	ALL
	Check of Cable Tension			603	ALL
	Check of Nose Wheel Steering/ Actuating Cylinder Attachment/Bolts			607	ALL
	Detailed Visual Inspection of Control Cables			609	ALL
R	Deactivation/Reactivation			901	ALL
R	Steering - Deactivation/ Reactivation (FAA only)			901	ALL
R	Ref. MMEL 32-51-01 (Rudder Pedal Nose Wheel Steering System) (FAA only)			901	ALL
R	Steering - Deactivation/ Reactivation (Not FAA)			902	ALL
	Ref. MMEL Sect. 1-32, item 21a. (Nose Wheel Steering Control System)			902	ALL
R	Ref. MMEL Sect. 1-32, item 21a. (Nose Wheel Steering Control System)			904	ALL
	Ref. MMEL Sect. 1-32, item 21b.			911	ALL

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	SUBJECT	CH/SE/SU	C	PAGE	EFFECTIVITY
	(Nose Wheel Steering Control System)				
R	Ref. MMEL Sect. 1-32, item 21b. (Nose Wheel Steering Control System)			913	ALL
	STEERING CONTROL COUPLER (1285)	32-51-14			
	Removal/Installation			401	ALL
	HYDRAULIC SYSTEM SELECTOR	32-51-17			
	Removal/Installation			401	ALL
	SWIVEL FITTING (1482)	32-51-19			
	Removal/Installation			401	ALL
	GREEN SYSTEM STEERING VALVE (1280)	32-51-21			
	Removal/Installation			401	ALL
	STEERING CONTROL (1284)(NOSE WHEELS)	32-51-23			
	Removal/Installation			401	ALL
	INDICATING AND WARNING	32-61-00			
	Description and Operation			1	ALL
	Normal Indicating			8	ALL
	Visual Indicating			8	ALL
	Adjustment/Test			501	ALL
	Operational Test			501	ALL
	Functional Test			505	ALL
	System Test			508	ALL
	Inspection/Check			601	ALL
	Deactivation/Reactivation			901	ALL
	MLG Visual-Down-Lock-Indicator Pre-flight Check			901	ALL
	INDICATOR - MAIN GEAR DOWNLOCKED	32-61-14			
	Removal/Installation			401	ALL
	TAIL GEAR	32-71-00			
	Description and Operation			1	ALL
	TAIL SKID SHOE	32-71-12			
	Removal/Installation			401	ALL

(Ref. Fig. 001, 002, 003)
(Ref. Fig. 004, 005)

1. General (Ref. Fig. 006)
The A310 is equipped with a tricycle type landing gear with direct-action shock absorbers. The LH and RH main gears and the nose gear are retractable under hydraulic power into wells closed off by gear doors.
The main gear, like the wing under which it is installed, is specific to the A310. The main gear retracts inboard, the gear structure being housed aft of the wing spar box. Two doors, mechanically linked to the gear structure and following gear movement at all times, restore the wing lower surface profile.
Each bogie beam, returned to the "aligned" position by a pitch damper, is equipped with 4 tire/ wheel/multidisc brake unit assemblies. The bogie beam assemblies are housed in the fuselage adjacent to the hydraulics compartment.
The fuselage profile is restored by two doors each operated by a hydraulic actuating cylinder.
The nose gear wheels are hydraulically steerable on the ground. The nose gear retracts forward into the fuselage mechanically actuating two small doors which close off the aft part of the well. The forward part of the well is closed off by two doors each operated by a hydraulic actuating cylinder.
A tail gear protects the structure in the event of excessive nose pitch-up.

SYMBOLS		DESIGNATION
ELECTRICAL	MECHANICAL OR HYDRAULIC	
	P	PRIORITY VALVE
	M	ELECTRICALLY OPERATED SHUT OFF VALVE
		ELECTRICALLY OPERATED SELECTOR VALVE
	M	MECHANICALLY OPERATED SELECTOR VALVE
	H	HYDRAULICALLY OPERATED SELECTOR VALVE
S	S	SOLENOID VALVE
SV		SERVOVALVE
		GROUND CONNECTOR
	M	ELECTRIC PUMP
	P	HYDRAULIC PUMP
	S	ENGINE PUMP
	RAT	RAM AIR TURBINE (RAT)
		HAND PUMP
	M	HYDRAULIC MOTOR

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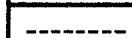
Symbols
Figure 001

SYMBOLS		DESIGNATION
ELECTRICAL	MECHANICAL OR HYDRAULIC	
		FILTER
		PRESSURE LINE
		RETURN LINE
		CONTROL LINE
		MECHANICAL CONNECTION
		ELECTRIC WIRE BUNDLE
		PRESSURE RELIEF VALVE
		ONE-WAY RESTRICTOR VALVE
		CHECK VALVE
		SAFETY VALVE (FUSE)
		2 WAY VALVE
		3 WAY VALVE
		PRESSURE ACCUMULATOR
		CABLE

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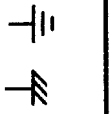
Symbols
Figure 002

SYMBOLS		
ELECTRICAL	MECHANICAL OR HYDRAULIC	
		AIRCRAFT GROUND ACCESSORY GROUND
		LAMP
		PRESSURE SWITCH
		SWITCH
		RELAY
		MONITORED CIRCUIT BREAKER
		PRESSURE TRANSMITTER
		SUMMING UNIT
		INDUCTIVE COIL
		RESISTOR
		CAPACITOR
		CURRENT GENERATOR
		TACHOMETER
		FREQUENCE/VOLTAGE CONVERTER

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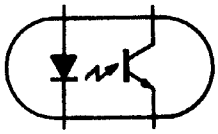
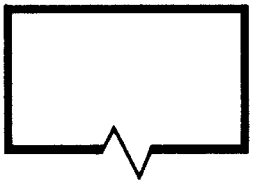
Symbols
Figure 003

SYMBOLS		DESIGNATION
ELECTRICAL	MECHANICAL OR HYDRAULIC	
		PHOTOTRANSISTOR
		ALTERNATING CURRENT MOTOR

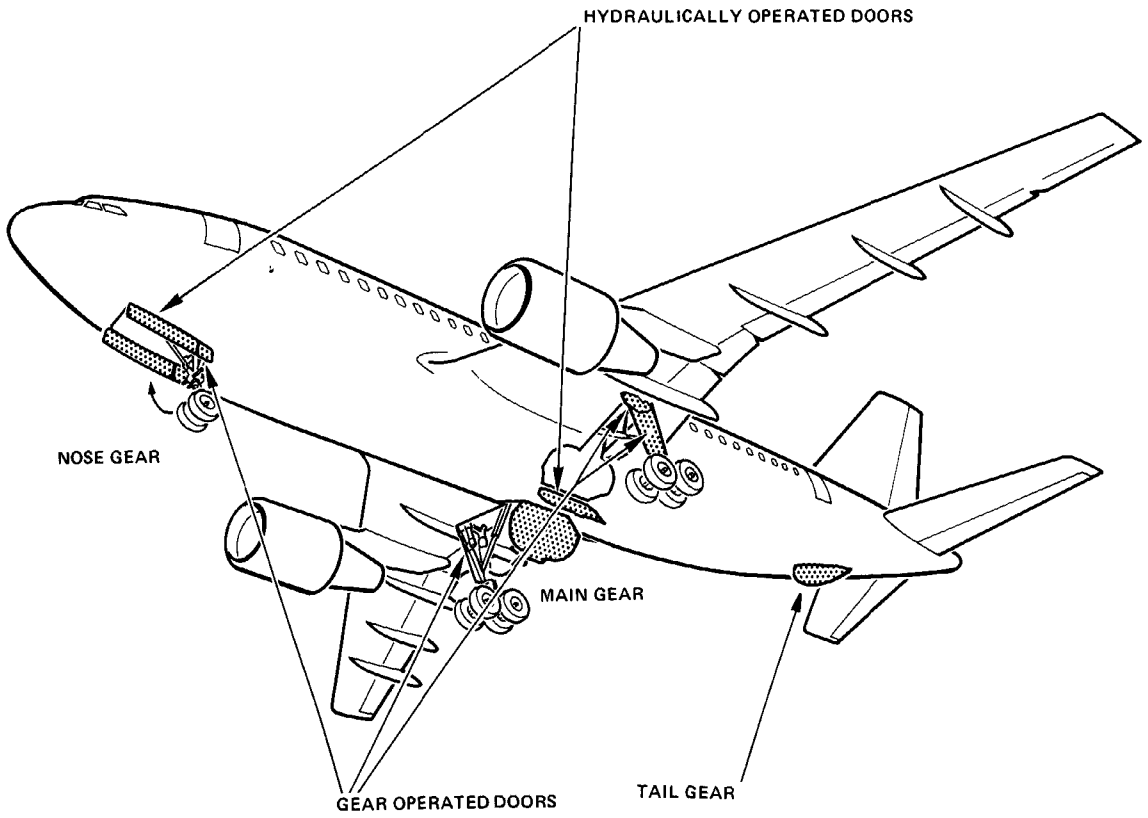
BM5 32 00 00 0 BGMO DM5

Symbols
Figure 004

SYMBOLS		DESIGNATION
ELECTRICAL	MECHANICAL OR HYDRAULIC	
		JUNCTION BOX PANEL EQUIPMENT OUT LINE UNIT COMPLETE
		JUNCTION BOX PANEL EQUIPMENT OUT LINE UNIT INCOMPLETE
		FULL PROVISION
		FUNCTION PART OF EQUIPMENT
		ZONE

BM5 32 00 00 0 BJMO DM5

Symbols
Figure 005



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Landing Gear
Figure 006

2. General Characteristics

(Ref. Fig. 007)

Track :

Main gear	9.6m (31 ft. 5.95 in.)
Main gear wheels	0.927m (36.5 in.)
with provision for	0.978m (38.5 in.)
Nose gear wheels	0.625m (24.6 in.)
Wheel base	15.22m (49 ft. 11.20 in.)
Distance between main gear fwd and aft axles	1.397m (55 in.)
Nose gear wheel offset (aft with respect to leg axis)	0.096m (3.78 in.)
Position of main gear on MAC	52.5%
MAC	5.83m
CG limits on ground	18 to 35%
Nose and main gear shock absorber stroke	0.450m (17.7 in.)
Bogie beam in-flight position	10.3° pitch-down
Nose wheel steering angle	± 65 °
± 95° during towing	

Angular displacement during extension/retraction

Main gear leg	: 80.3°	Main gear doors	: 89°
Nose gear leg	: 110°	Nose gear doors	: 88°

Tire dimensions (tubeless) :

Main gear 46 x 16-20 (49 x 17-20 and 49 x 19-20 as options)

Nose gear 40 x 14-16

Tail gear contact attitude : 14°40',main gear shock absorbers extended

A. Aircraft Weight :

Maximum Taxi Weight		Maximum Take-Off Weight		Maximum Landing Weight	
KG	LBS	KG	LBS	KG	LBS
157.900	348170	157.000	346185	124.000	273420

B. Landing gear weight :

Nose gear (complete) : 690 kg (1521 lbs)

Main gear (complete) : 2710 kg each (5974 lbs)

Bogie beam assy : 1510 kg each (3329 lbs)

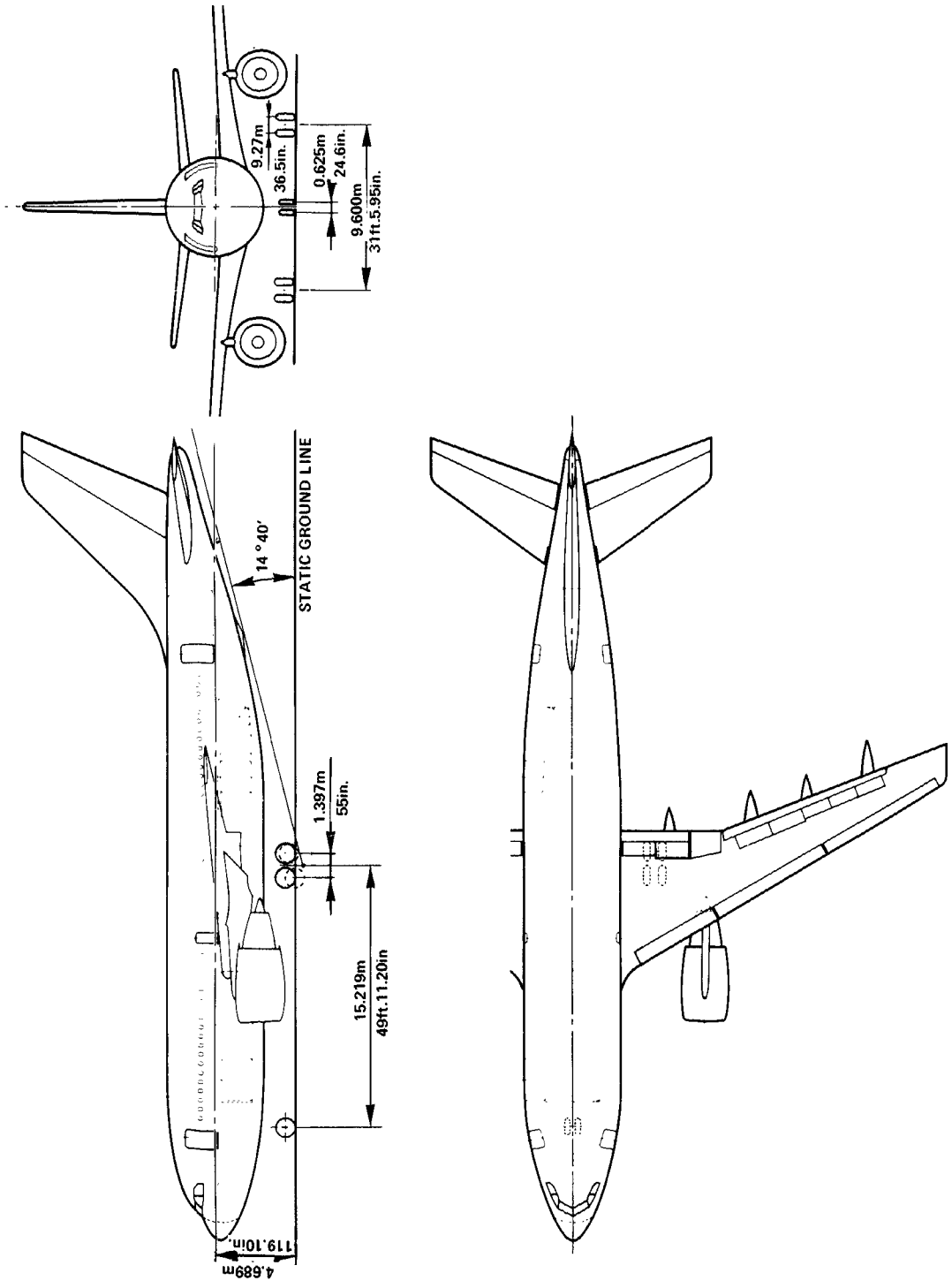
R

R C. Maximum brake pressure : 175 bars (2538 psi)

R D. Landing gear operating envelope :

VLO (maximum landing gear operating speed) : 270 kts

VLE (maximum landing gear extended speed) : 270 kts

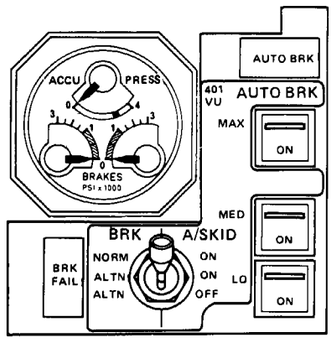


Landing Gear - General Dimensions on Aircraft
Figure 007

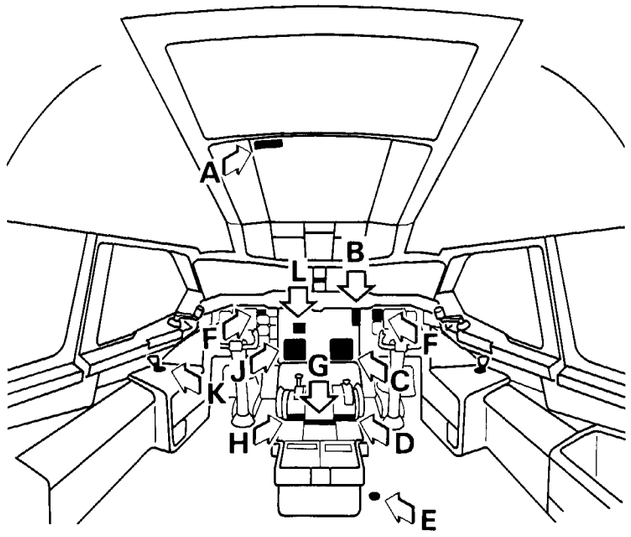
3. Flight Compartment Controls and Indicators
(Ref. Fig. 008)
All the landing gear extension and retraction, braking and nose wheel steering controls and associated annunciator lights and CRT display units are grouped in the flight compartment.
(Ref. Fig. 009)
(Ref. Fig. 010)
(Ref. Fig. 011)
(Ref. Fig. 012)
(Ref. Fig. 013)
(Ref. Fig. 014)
(Ref. Fig. 015)
(Ref. Fig. 016)
(Ref. Fig. 017)
(Ref. Fig. 018)
(Ref. Fig. 019)
(Ref. Fig. 020)
(Ref. Fig. 021)
(Ref. Fig. 022)
(Ref. Fig. 023)
(Ref. Fig. 024)

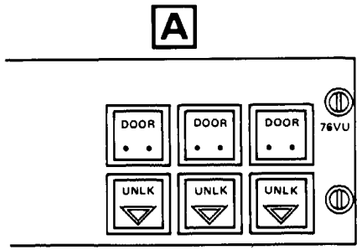
4. Hydraulic Power Supply (Ref. Fig. 025, 026)
The Green hydraulic system is used to power landing gear Normal extension/retraction, Normal braking and nose wheel steering.
The Yellow hydraulic system, assisted by two brake accumulators is used to supply the brakes in Alternate and Parking modes.

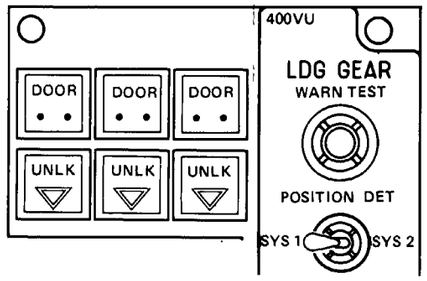
5. Electrical Functions
(Ref. Fig. 027)

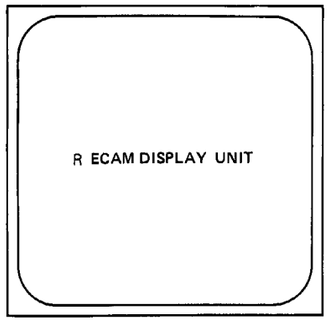


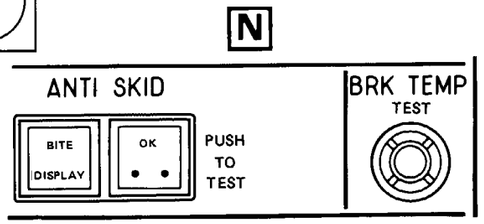
L

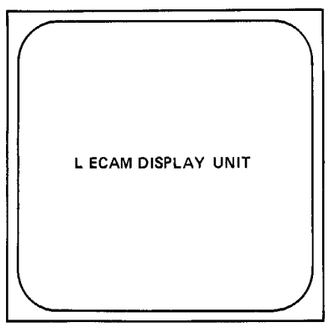






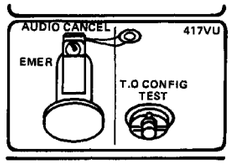


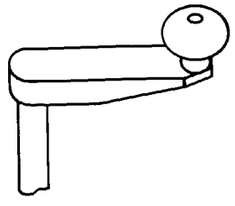


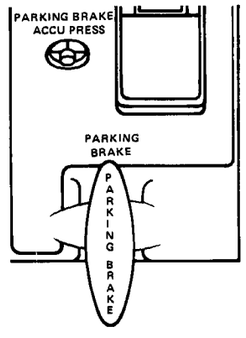


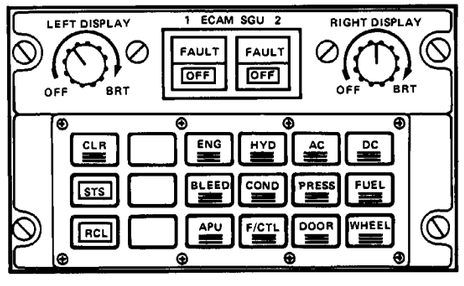
J

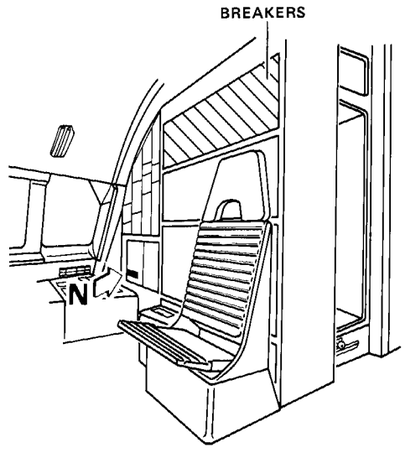
K





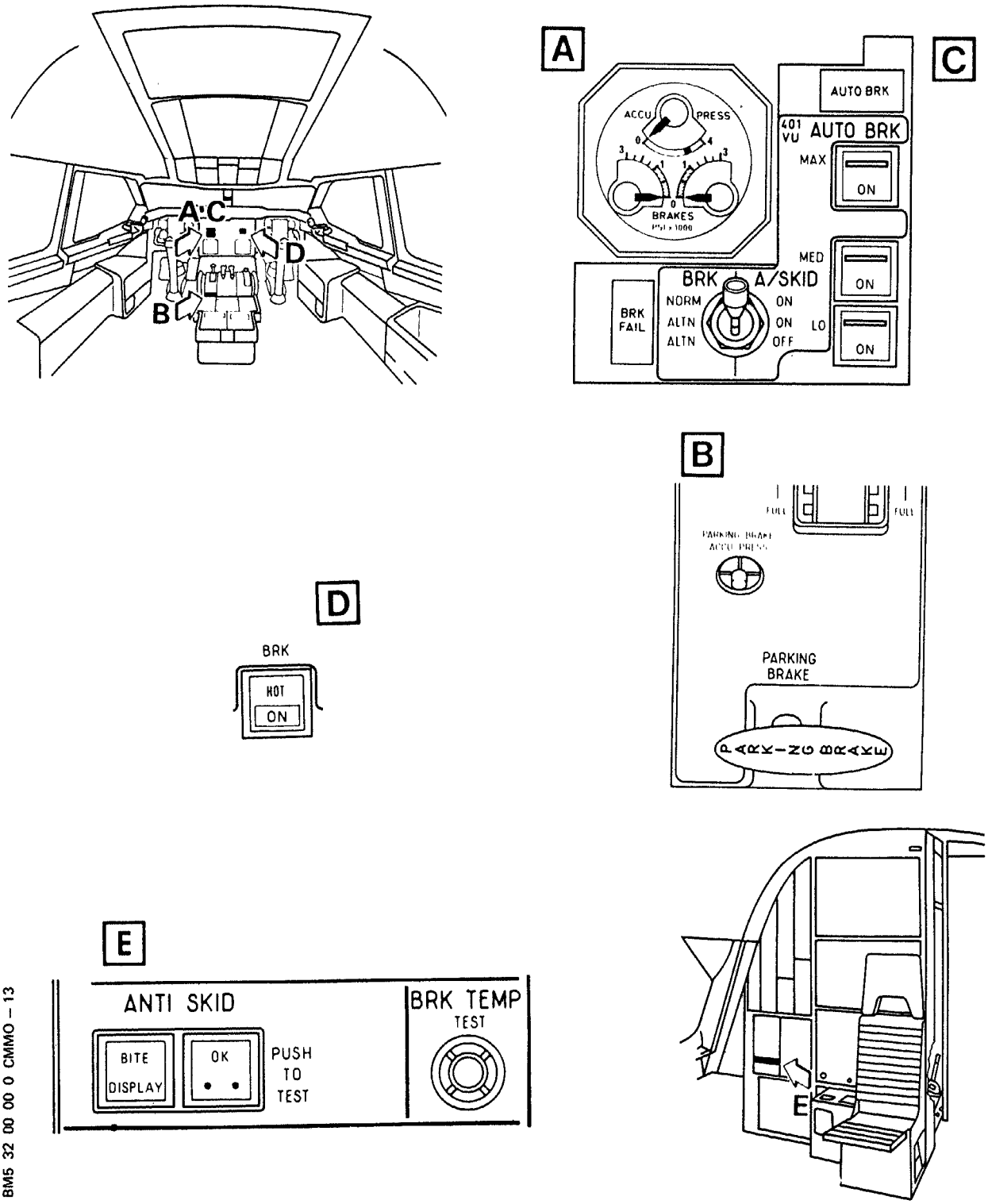






Flight Compartment Control and Indicator
Figure 008

BM5 32 00 00 0 AXMO – 17

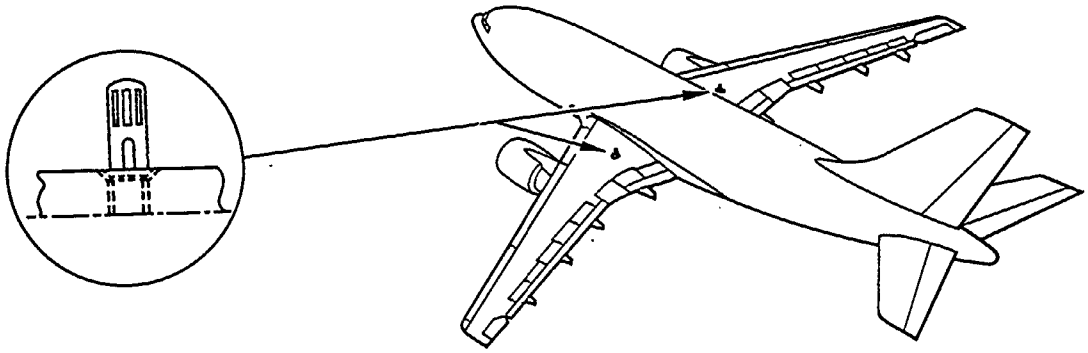


BM5 32 00 00 0 CMMO – 13

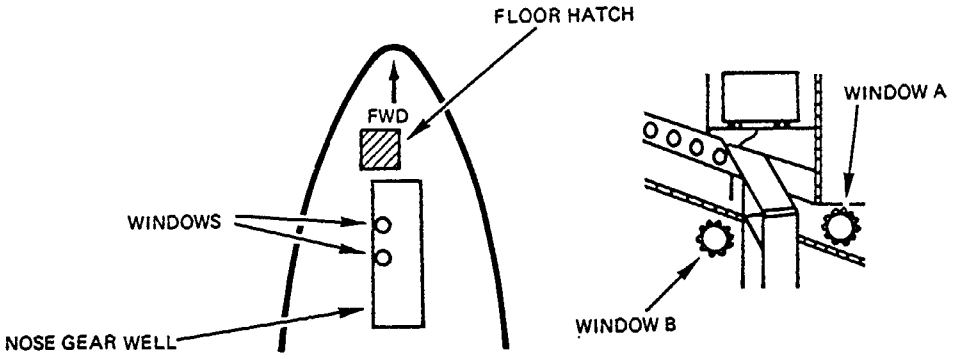
Braking Controls and indicating - Location
Figure 009

DOWNLOCK VISUAL INDICATORS

MAIN GEAR INDICATOR
A RED PIN APPEARS ON EACH WING UPPER SKIN (ABOVE THE GEAR WELL) WHEN THE ASSOCIATED MAIN GEAR IS DOWNLOCKED. IT IS VISIBLE FROM THE CABIN.

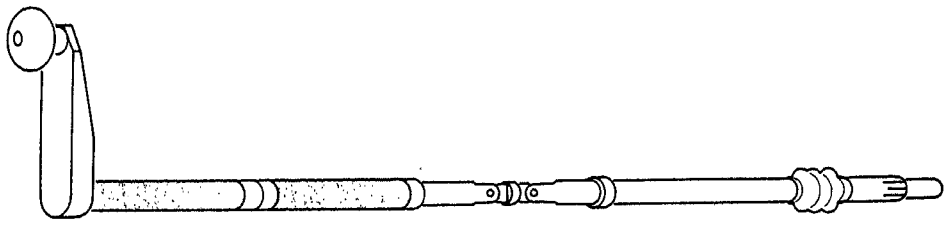


NOSE GEAR INDICATOR : TWO WINDOWS LOCATED IN THE AVIONICS COMPARTMENT ON NOSE GEAR WELL LH SIDE :
- WINDOW A : FOR VIEWING A GREEN MECHANICAL INDICATOR LOCATED ON THE TELESCOPIC DRAG STRUT
- WINDOW B : FOR LIGHTING THE MECHANICAL INDICATOR BY MEANS OF A FLASH LIGHT.



BM5 32 00 00 0 CCMO
DM5

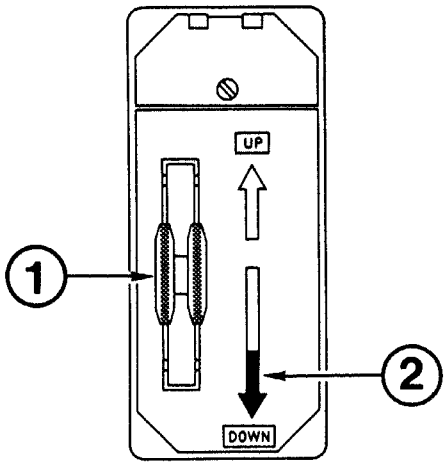
Downlock visual indicators - Location
Figure 010



STOWED IN THE F/O CONSOLE. FOR FREE FALL EXTENSION THE HANDLE MUST BE INSERTED IN A PROTECTED FLIGHT COMPARTMENT FLOOR FITTING AFT OF THE CENTER PEDESTAL ON RH SIDE, THEN ROTATED CLOCKWISE.
GREEN HYDRAULIC PRESSURE IS FIRST ISOLATED. THEN, ALL CHAMBERS ARE CONNECTED TO THE GREEN RESERVOIR. AT 17.5 TURNS, DOORS UNLOCK. AT 19.5 TURNS GEARS UNLOCK, FREE FALL AND DOWNLOCK ASSISTED BY AERODYNAMIC FORCES (NOSE L/G) AND SPRING ASSISTANCE (MAIN L/G). DOORS WILL REMAIN OPENED UNTIL FLIGHT OR GROUND RECONDITIONING.

BM5 32 00 00 0 KEMO
DM5

Free Fall Control
Figure 011



1 - LANDING GEAR CONTROL LEVER
THE LEVER MUST BE PULLED PRIOR TO SELECTING ONE OF THE THREE POSSIBLE POSITIONS. THE LEVER CONTROLS GREEN HYDRAULIC SUPPLY FOR NORMAL OPERATION.

UP – THE LANDING GEAR IS RETRACTED.
– AN INTERLOCK MECHANISM PREVENT UNSAFE RETRACTION BY LOCKING THE LEVER WHEN GEAR POSITION PROXIMITY DETECTORS OF SELECTED SYS (1 OR 2) ARE NOT IN FLIGHT CONFIGURATION. :
. 3 SHOCK ABSORBERS EXTENDED
. NOSE WHEEL CENTERED
. 2 BOGIE BEAMS ALIGNED.
– DURING DOOR OPENING ONLY, ANTI SKID IS DEACTIVATED AND MAIN GEAR WHEELS ARE BRAKED AUTOMATICALLY.
– AT THE END OF NOSE GEAR RETRACTION TRAVEL, NOSE WHEELS ARE MECHANICALLY BRAKED

NEUTRAL – NORMAL FLIGHT POSITION. HYDRAULIC PRESSURE TO LANDING GEAR CIRCUIT IS CUT OFF

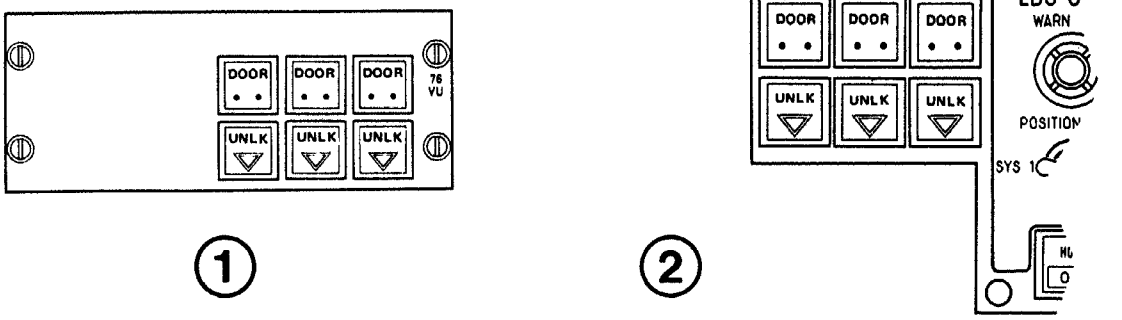
DOWN – THE LANDING GEAR IS EXTENDED AND THE SYSTEM REMAINS PRESSURIZED.

2 - RED ARROW – ILLUMINATED RED IF THE LANDING GEAR IS NOT DOWN AND LOCKED WHILE THE AIRCRAFT IS IN APPROACH OR LANDING CONFIGURATION. ILLUMINATION OF RED ARROW IS ACCOMPANIED BY ECAM ACTIVATION.

BM5 32 00 00 0 DAMO
DM5

Landing Gear Control Lever Switch Unit
Figure 012

LANDING GEAR INDICATING UNITS



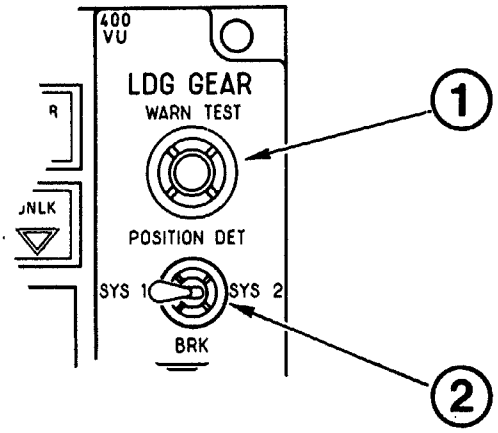
TWO INDEPENDENT SETS OF GEAR/DOOR POSITION ANNUNCIATORS ARE PROVIDED.

(1) OVERHEAD PANEL ANNUCIATORS, ENERGIZED BY NORM ELEC PWR, CONNECTED TO SYS 2 MICROSWITCHES AND PROXIMITY DETECTORS.

(2) CENTER INSTRUMENT PANEL ANNUNCIATORS, ENERGIZED BY EMER ELEC PWR,CONNECTED TO SYS 1 MICROSWTCHES AND PROXIMITY DETECTORS.

.AMBER DOOR LEGEND = DOOR NOT UPLOCKED
.RED UNLK LEGEND =GEAR NOT LOCKED IN SELECTED POSITION(OR GEAR NOT UPLOCKED WITH: CONTROL LEVER IN NEUTRAL POSITION)
.GREEN ▽ LIGHT=GEAR DOWN LOCKED

LDG GEAR PANEL

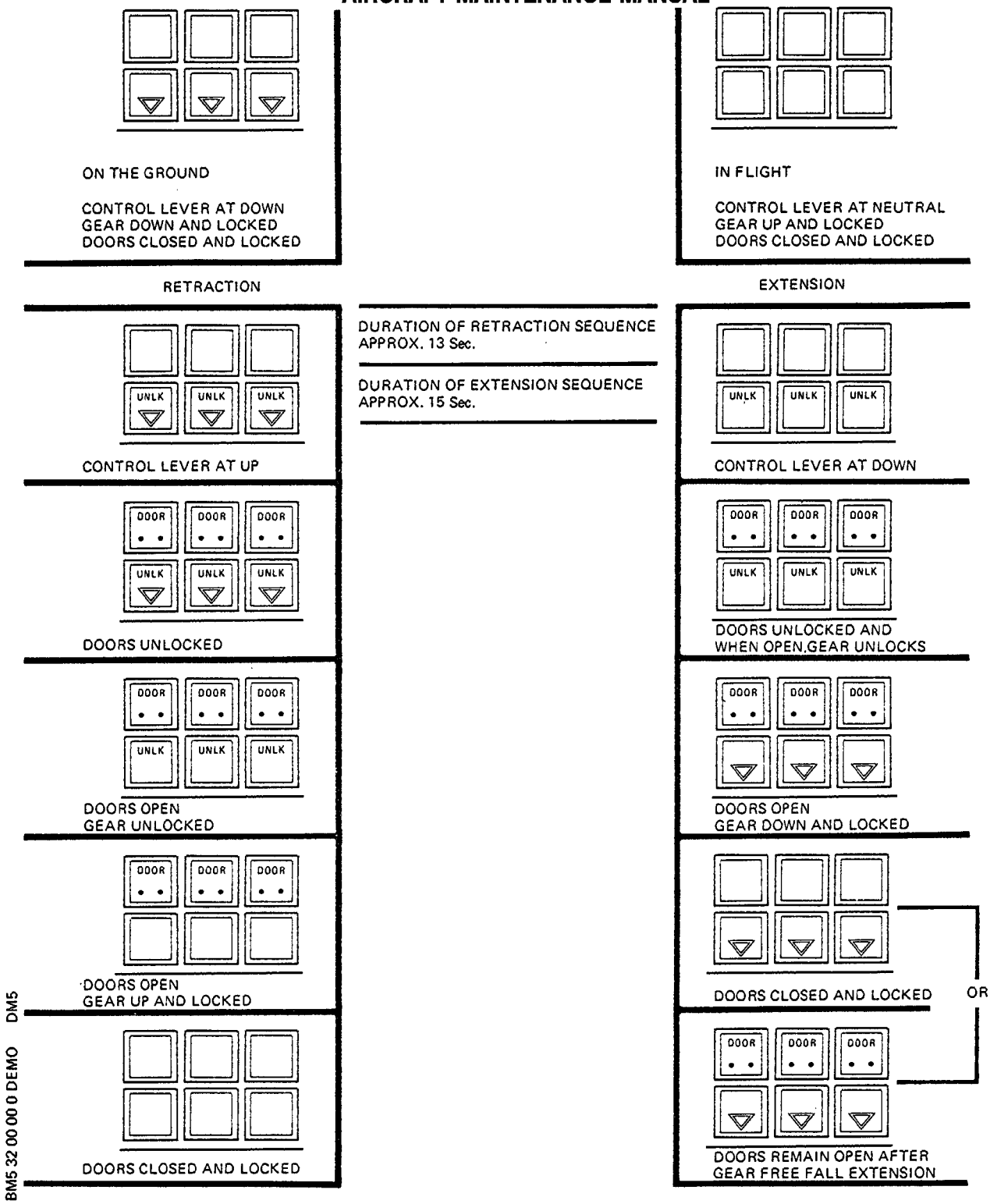


1 - WARN TEST PUSHBUTTON SWITCH: CONTROLS THE TEST OF THE GEAR NOT DOWN AND LOCKED WARNING.WHEN DEPRESSED THE DOWN ARROW ILLUMINATES ACCOMPANIED BY ECAM ACTIVATION.

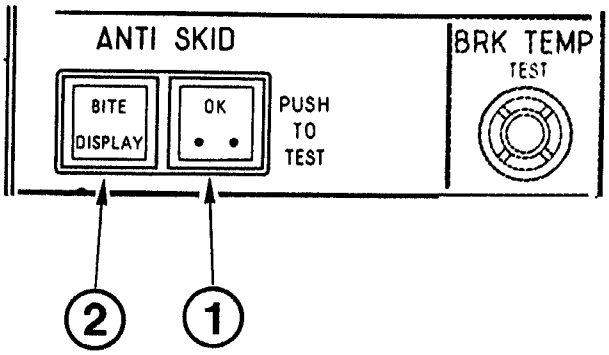
2– POSITION DET SYS SWTCH: THE ACTIVA DETECTION SYSTEM FOR GEAR NOT LOCKED DOWN WARNING AND FOR INTERLOCK SAFETY SYSTEM IS DETERMINED BY SWITCH POSITION.

BM5 32 00 00 0 DCMO – 12 – 07
DM5

Landing Gear and Door Indicating
Figure 013



Extension and Retraction Sequences
Figure 014



1 - ANTI SKID OK/PUSH TO TEST P/B SWITCH

- NEUTRAL (RELEASED-OUT-SPRINGLOADED POSITION)
  TEST CIRCUIT IS NOT ENERGIZED.

- TEST (PUSHED-IN)
  TEST CIRCUIT IS ENERGIZED
  A SPEED OF NOSE AND MAIN WHEELS IS SIMULATED
  IF THE ANTI-SKID SYSTEM IS OPERATIVE, ALL THE «REL» INDICATIONS AND THE OK-LEGEND COME ON.
  IN CASE OF FAILURE, THE BITE DISPLAY LEGEND COMES ON.

2 - BITE DISPLAY MEMORIZED FAULT ANNUNCIATOR

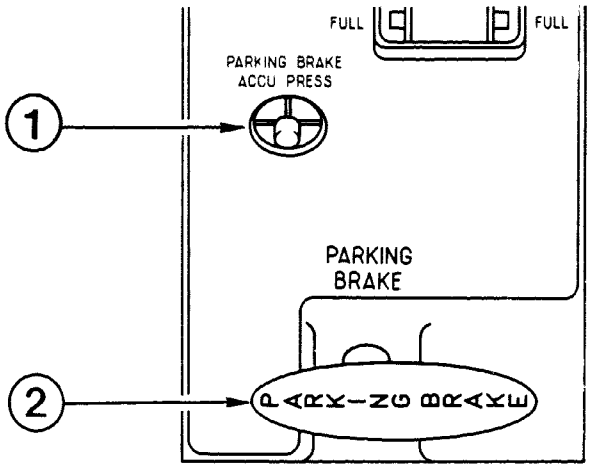
THE BITE DISPLAY LEGEND COMES ON WHITE AND REMAINS ON IF ANY FAULT IS DETECTED ON NORMAL BRAKING ELECTRICAL CONTROL AND THE ANTI SKID SYSTEM.

THE CODED FAILURE IS INDICATED ON THE FACE OF THE BRAKE SYSTEM CONTROL UNIT LOCATED IN THE AVIONICS COMPARTMENT.

BM5 32 00 00 0 DJMO
DM5

Anti Skid Test Control
Figure 015

PARKING BRAKE/ACCU PRESS PUSHBUTTON SWITCH AND PARKING BRAKE HANDLE



1 - PARKING BRAKE ACCU PRESS PUSHBUTTON SWITCH

AS LONG AS PUSHBUTTON IS PRESSED, THE SELF REGULATING ELECTRIC PUMP IS ACTIVATED AND DELIVERS 6L/MN MAX UNDER 3 000 PSI TO CHARGE THE BRAKE ACCUMULATORS.

2 - PARKING BRAKE HANDLE

PULL HANDLE AND TURN CLOCKWISE TO APPLY PARKING BRAKE. APPLICATION OF THE PARKING BRAKE DEACTIVATES NORM AND ALTN MODES.

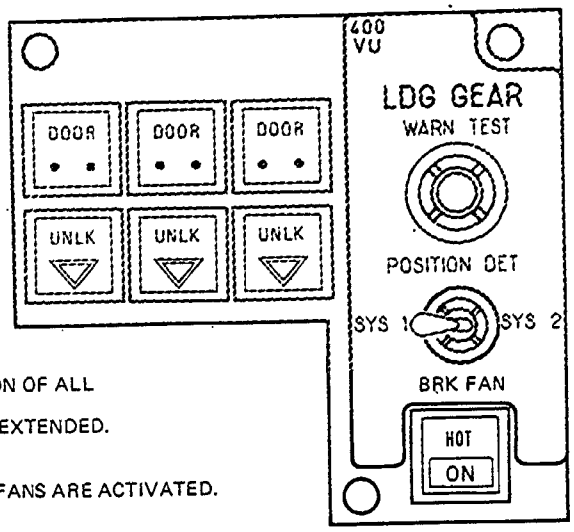
BM5 32 00 00 0 DNMO

Parking Brake Conrtrol
Figure 016

BRK FAN PUSHBUTTON SWITCH

THE HOT LEGEND COMES ON AMBER WHEN THE TEMPERATURE OF ANY BRAKE EXCEEDS 200°C. THE WARNING REMAINS EFFECTIVE AFTER LANDING GEAR RETRACTION.

ILLUMINATION OF THE HOT LEGEND IS ACCOMPANIED BY ECAM ACTIVATION.



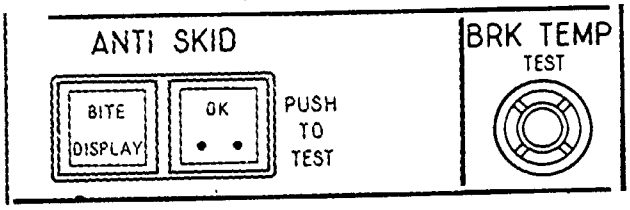
BRAKE FAN (OPTIONAL)

THE PUSHBUTTON SWITCH CONTROLS THE OPERATION OF ALL BRAKE FANS SIMULTANEOUSLY.
IT IS EFFECTIVE ONLY WHEN THE LANDING GEAR IS EXTENDED.

- ON (P/B SWITCH PRESSED-IN)
  THE ON LEGEND COMES ON GREEN, BRAKE FANS ARE ACTIVATED.
- OFF (P/B SWITCH RELEASED-OUT)
  THE ON LEGEND IS OFF, BRAKE FANS ARE DEACTIVATED.
- HOT THE HOT LEGEND COMES ON AMBER WHEN THE TEMPERATURE OF ANY BRAKE EXCEEDS 200°C.
  THE HOT WARNING REMAINS EFFECTIVE AFTER LANDING GEAR RETRACTION.

  ILLUMINATION OF THE HOT LEGEND IS ACCOMPANIED BY ECAM ACTIVATION.

BRK TEMP TEST PUSHBUTTON SWITCH

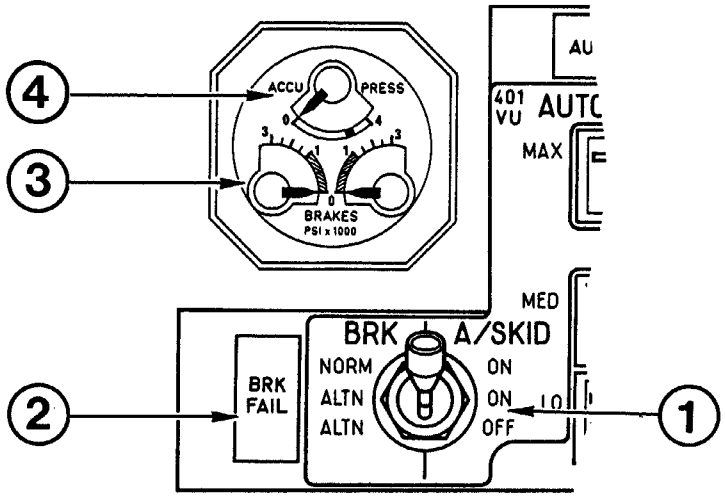


WHEN THE PUSHBUTTON SWITCH IS PRESSED AND HELD, A TEMPERATURE 70°C HIGHER THAN THE WARNING THRESHOLD IS SIMULATED.

THE HOT LEGEND COMES ON AMBER ACCOMPANIED BY ECAM ACTIVATION TO INDICATE POSITIVE TEST.

BM5 32 00 00 0 DKMO
DM5

Brake Temperature Control and Indicators
Figure 017



1 - BRK/A/SKID SWITCH

NORM/ON : ANTI SKID IS CONTROLLED VIA 8 SERVOVALVES PROVIDED THAT GREEN HYDRAULIC HYDRAULIC PRESSURE IS AVAILABLE. CONTROL IS ELECTRICAL WITH NO PRESSURE INDICATION.
IF GREEN PRESSURE DROPS, YELLOW HYDRAULIC PRESSURE TAKES OVER AUTOMACALLY WITH DUAL BRAKES PRESSURE INDICATION (3) ; ANTI SKID IS STILL OPERATIVE.

ALT/ON : YELLOW HYDRAULIC PRESSURE IS DELIVERED TO SEPARATE SETS OF BRAKE PISTONS VIA SEPARATE SERVOVALVES. CONTROL IS HYDRAULIC WITH BRAKES PRESSURE INDICATION (3) ; ANTI SKID IS OPERATIVE.

ALT/OFF : SAME AS FOR ALTN/ON BUT ANTI SKID SYSTEM IS DEACTIVATED.

2 - BRK FAIL LIGHT COMES ON AMBER, ACCOMPANIED BY ECAM ACTIVATION, WHEN :

- IN FLIGHT, DURING LANDING GEAR RETRACTION, BRAKING PRESSURE IS NOT BETWEEN 300 AND 860 PSI
  . REMAINS LATECHED AFTER LANDING (GOES OFF WHEN ALT/ON SELECTED)
- ANY RELEASE INDICATION NOT DISPLAYED ON ECAM IN FLIGHT
  . GOES OFF AUTOMATICALLY AT LANDING
- SWITCH IN ALTN/OFF POSITION.

3 - BRAKES PRESSURE INDICATION
INDICATES YELLOW PRESSURE DELIVERED TO L AND R BRAKES MEASURED UPSTREAM OF ALTN SERVOVALVES.
. NORMAL PARKING BRAKE PRESSURE IS AROUND 2,100 PSI
: THE SCALE IS MARKED BY GREEN ARE FROM 0 PSI to 1,000 PSI

4 - ACCU PRESS INDICATION :
. NORMAL PRESSURE IS BETWEEN 2,800 AND 3,200 PSI (GREEN ZONE).

BM5 32 00 00 0 CEM0 – 24

Braking Control and Indicating
Figure 018

AUTO BRK PANEL

MAX, MED, LO PUSHBUTTON SWITCHES

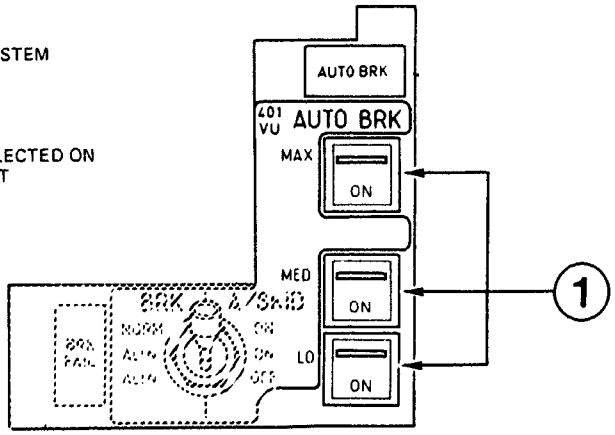
THE PUSHBUTTON SWITCHES CONTROL ARMING OF THE SYSTEM WITH DIFFERING DECELERATION RATES

AUTOBRAKE SYSTEM IS ACTIVATED WHEN,

- ONE OF THE MAX, MED, LO PUSHBUTTON SWITCHES IS SELECTED ON
- AND, GROUND SPOILERS DEPLOYMENT ORDER IS PRESENT

THE SELECTABLE DECELERATION RATES ARE :

MAX	MAXIMUM BRAKING PRESSURE
MED	APPROX. 3 m/S2
LO	APPROX. 1.70 m/S2



MAX MODE IS NORMALLY SELECTED FOR TAKEOFF
IN THE EVENT OF AN ABORTED TAKEOFF, MAXIMUM PRESSURE IS SENT TO THE BRAKES AS SOON AS GROUND SPOILERS DEPLOYMENT ORDER IS PRESENT.

MED. AND LO MODES ARE NORMALLY SELECTED FOR LANDING.
PROGRESSIVE PRESSURE IS SENT TO THE BRAKES 10 SEC AFTER THE GROUND SPOILERS DEPLOYMENT ORDER.

WHEN THE GROUND SPOILERS ARE RETRACTED
- EITHER, AUTOMATICALLY BY APPLICATION OF FORWARD THRUST
- OR, MANUALLY BY ACTION ON THE SPEEDBRAKE LEVER
THE AUTOBRAKE SYSTEM IS DISARMED.

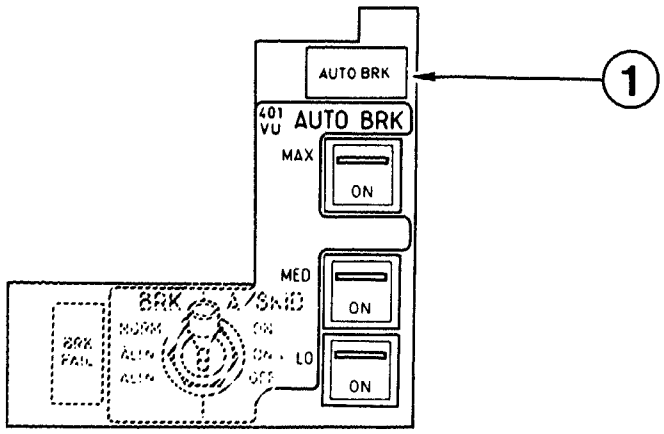
- ON (P/B SWITCH PRESSED-IN)
  THE ON LEGEND COMES ON BLUE TO INDICATE POSITIVE ARMING PROVIDED THE ARMING CONDITIONS ARE MET.

- OFF (P/B SWITCH RELEASED-OUT)
  THE AUTOBRAKE SYSTEM IS DEACTIVATED FOR THE ASSOCIATED MODE.

- BAR THE BAR INTEGRATED IN THE UPPER PART OF THE PUSHBUTTON SWITCH COMES ON GREEN WHEN ACTUAL AIRCRAFT DECELERATION CORRESPONDS TO THE SELECTED DECELERATION RATE

BM5 32 00 00 0 DFMO – 13

Auto Brake Control and Indicating
Figure 019



(1) AUTO BRK LIGHT

THE AUTO BRK LIGHT FLASHES AMBER FOR 10 SEC. WHEN :

- AUTOMATIC DISARMING OCCURS DUE TO LOSS OF ONE OF THE FOLLOWING ARMING LOGIC CONDI TIONS :

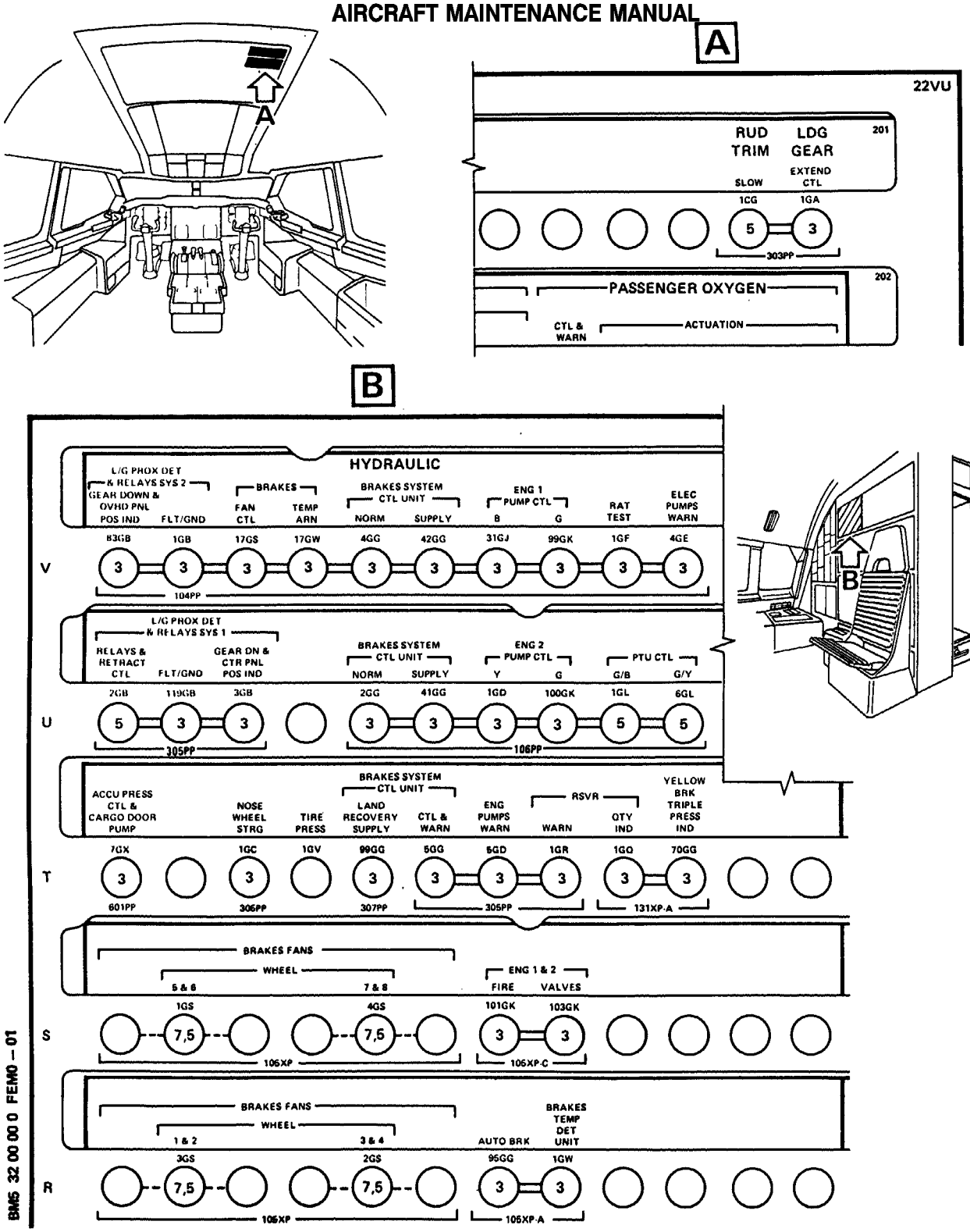
  - GREEN HYDRAULIC PRESSURE AVAILABLE
  - BRK/A/SKID SELECTOR AT NORM/ON
  - PARKING BRAKE RELEASED
  - AUTOBRAKE ACCELEROMETER OPERATIVE
  - DIFFERENTIAL BRAKE PRESSURE LOWER THAN 290 PSI
  - BRK FAIL LIGHT OFF

- OR, ACTION ON ONE OR A PAIR OF BRAKE PEDALS AFTER GROUND SPOILERS DEPLOYMENT.

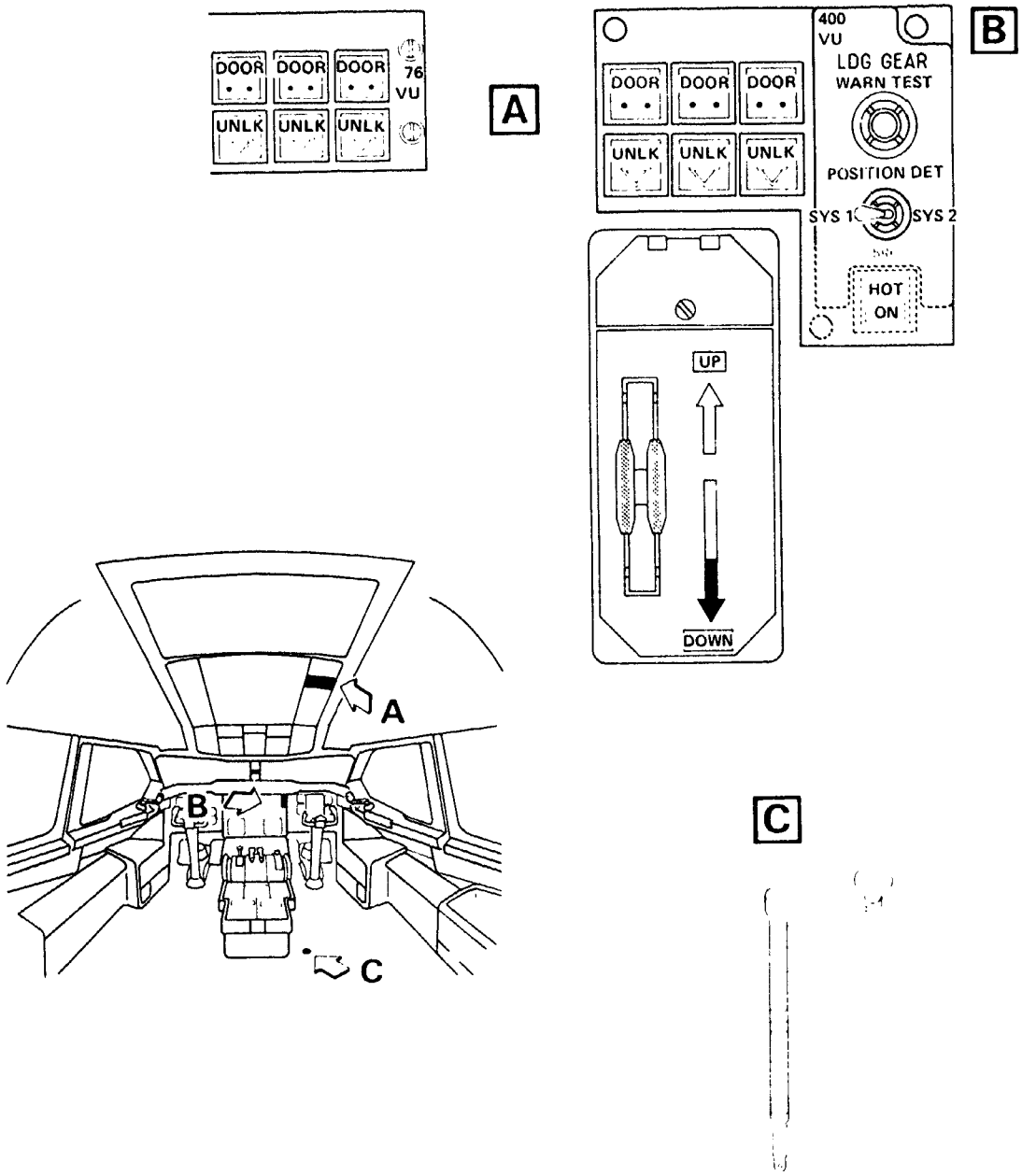
ILLUMINATION OF AUTO BRK LIGHT IS ACCOMPANIED BY ECAM ACTIVATION

BM5 32 00 00 0 DGMO – 13

Auto BRK Warning Light
Figure 020

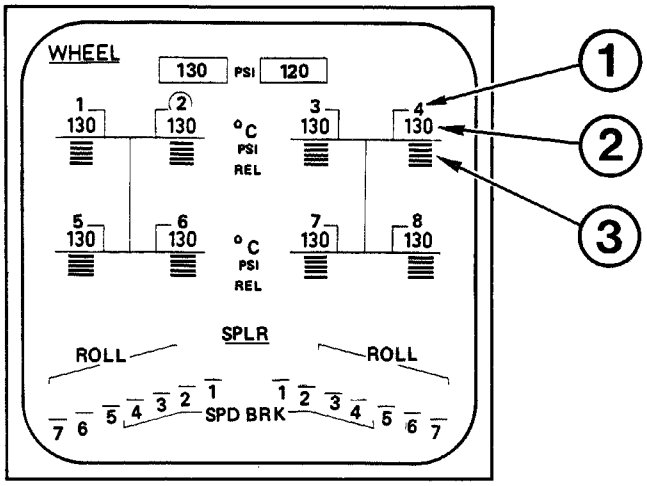


Circuit Breakers
Figure 021



BM5 32 00 00 0 CHMO - 13

Extension/Retraction and Steering Controls and Indicators - Location
Figure 022



1 -WHEEL IDENTIFICATION

1	WHITE	WHEEL NUMBER
1	GREEN	CIRCLE AROUND WHEEL NUMBER INDICATES THE HOTTEST BRAKE

2 - BRAKE TEMPERATURE

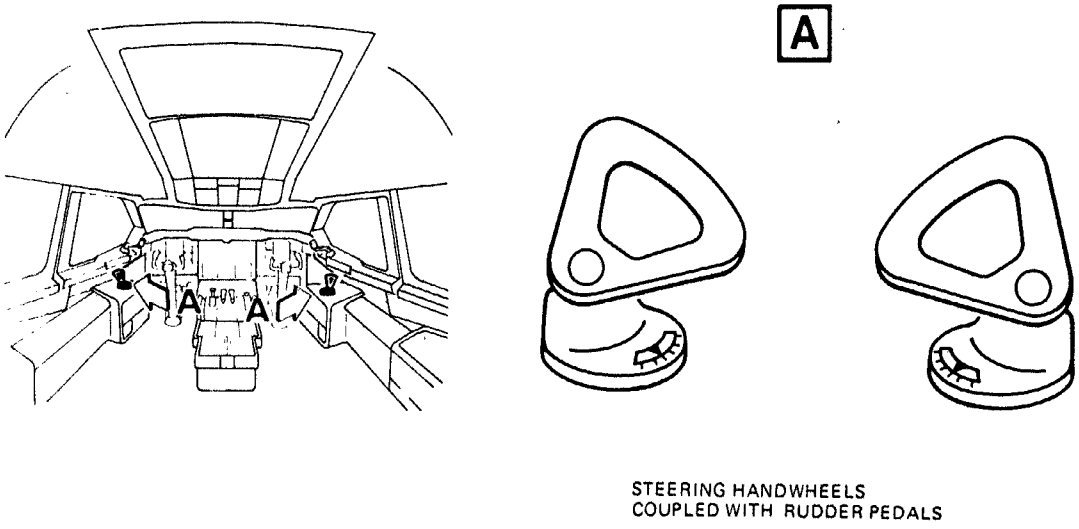
130	GREEN	BRAKE TEMPERATURE IN NORMAL RANGE
210	AMBER	BRAKE TEMPERATURE EXCEEDS 900°C
700	AMBER	WIRING RUPTURE OR SHORT CIRCUIT

3 - BRAKE RELEASE (GREEN)

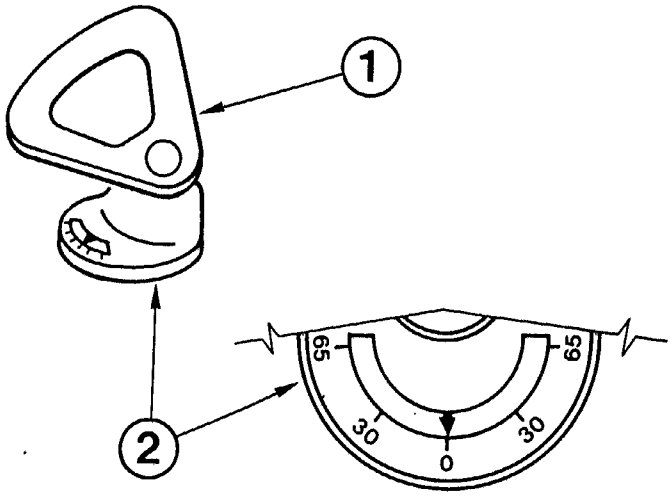
APPEARS IN FLIGHT WHEN L/G IS DOWN AND ANTI SKID VALID.
DISAPPEARS AT TOUCH DOWN. REAPPEARS AS SOON AS THE ANTI SKID DELIVERS A RELEASE SIGNAL TO THE BRAKE
NOT SHOWN WHEN THE AIRCRAFT IS STATIONARY
MAY APPEAR DURING PUSH BACK .

BM5 32 00 00 0 ELM0 – 25

Right ECAM Display Unit - WHEEL Page
Figure 023



STEERING HANDWHEELS
COUPLED WITH RUDDER PEDALS



1 - STEERING HANDWHEELS
THE STEERING HANDWHEELS ARE INTERCONNECTED AND CONTROL THE NOSE WHEEL STEERING ANGLE ; UP TO 65° IN EITHER DIRECTION.
WHEN NOSE WHEEL STEERING IS OPERATED BY RUDDER PEDALS (UP TO 6° EITHER DIRECTION) THE STEERING HANDWHEELS ROTATE ACCORDINGLY.

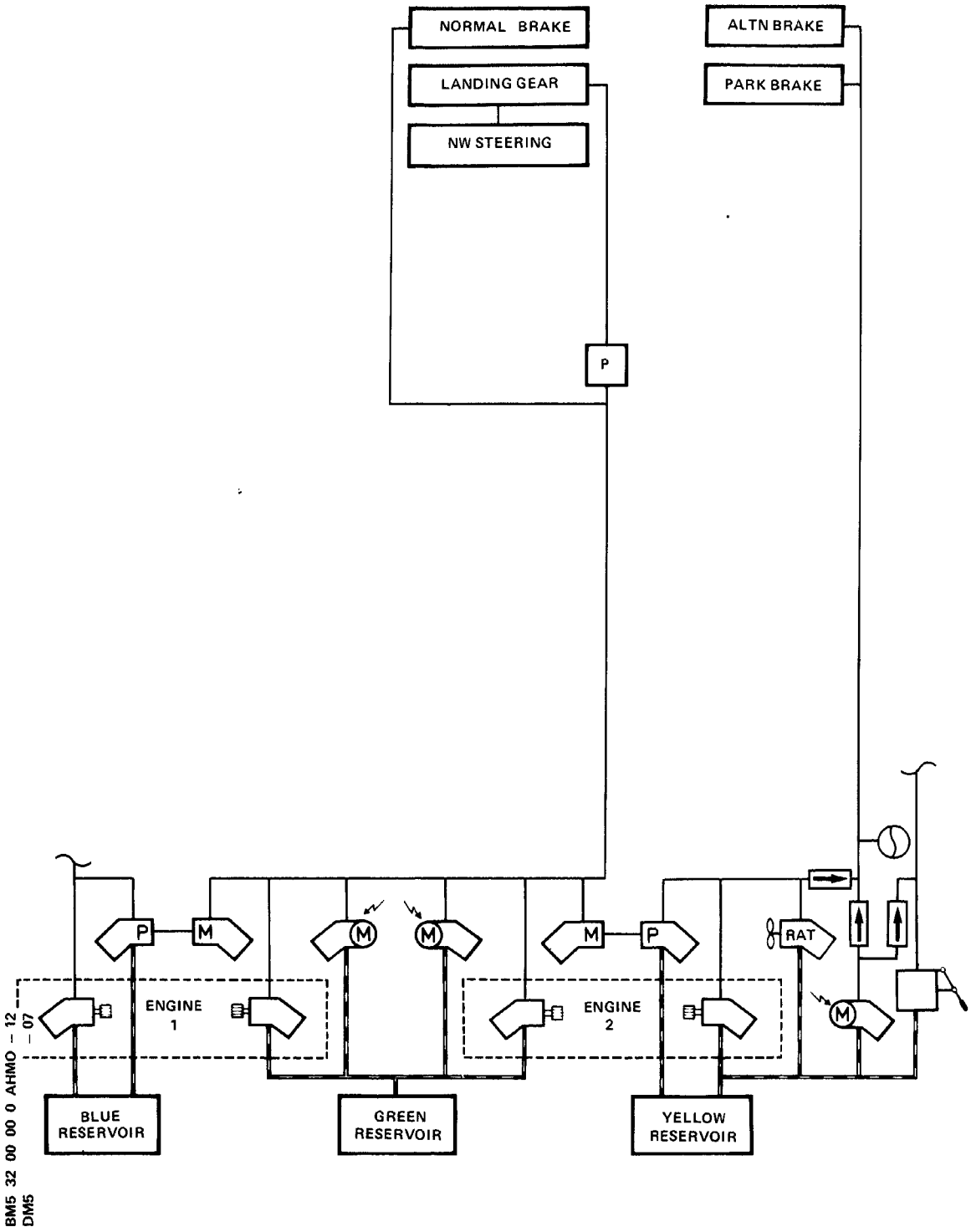
- CLOCKWISE — STEERING TO THE RIGHT
- COUNTER CLOCKWISE — STEERING TO THE LEFT

2 - STEERING INDEX
THE INDEX AT EACH STEERING WHEEL INDICATES THE STEERING ANGLE IN ° ; UP TO 65° TO EITHER SIDE - LEFT OR RIGHT

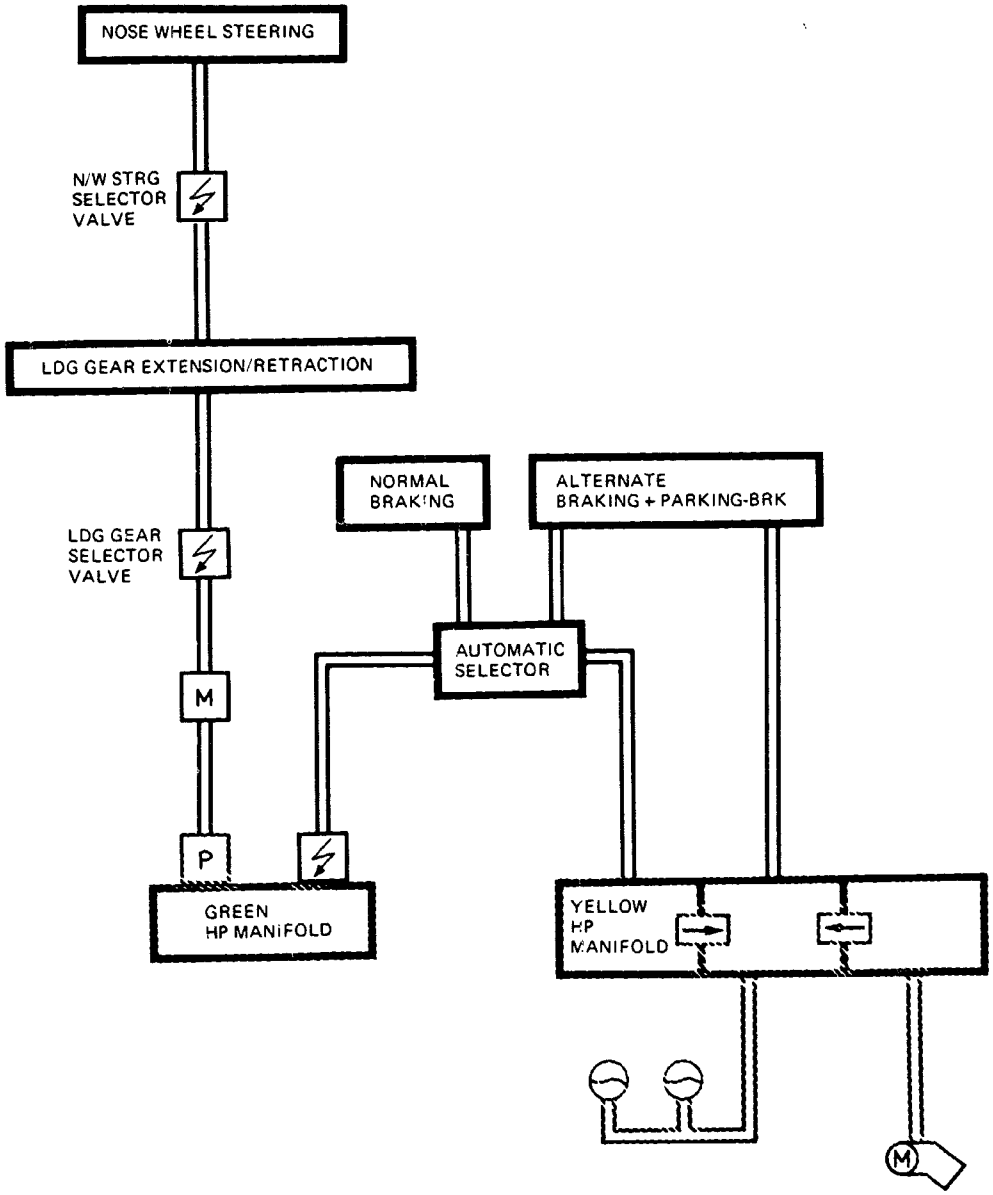
NOTE : NOSE WHEEL STEERING IS SELF CENTERING AFTER LIFT-OFF.

BM5 32 00 00 0 DRMO – 13

Nose Wheel Steering Control and indicating
Figure 024

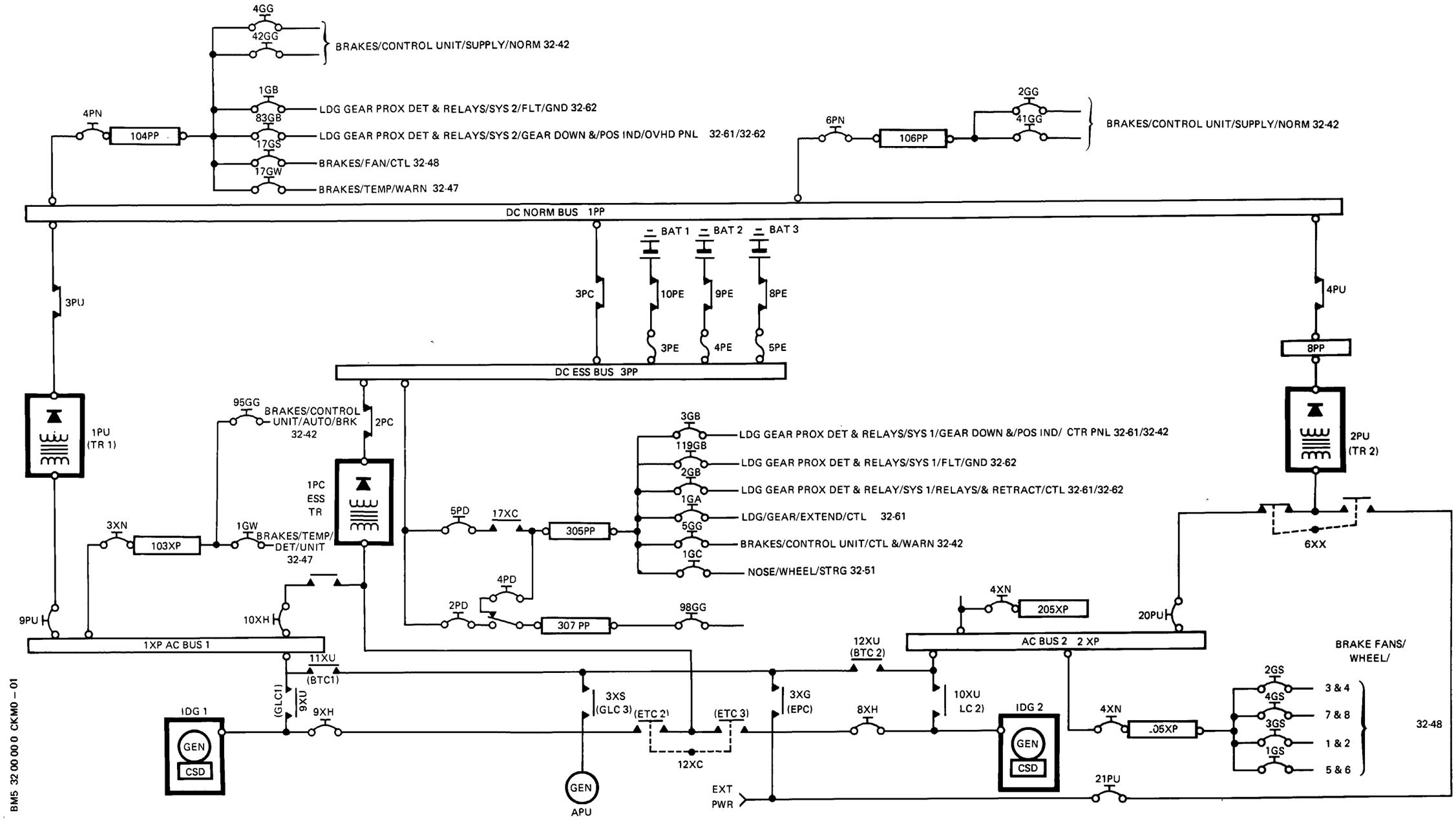


Landing Gear Hydraulic Power Supply
Figure 025



BM5 32 00 00 0 AJMO

Hydraulic Power Users
Figure 026



Landing Gear Electrical Power Supply
Figure 027

6. Extension and Retraction (Ref. Fig. 028)

A. Normal Extension and Retraction - Ref. 32-31-00, P. Block 1)

(1)Control

Landing gear Normal extension and retraction is controlled through a 3-latched-position lever located on the First Officer's side of the center instrument panel. This lever controls the landing gear selector valve located on the hydraulics compartment roof.

Power is supplied by the Green hydraulic system.

The successive door opening, gear extension or retraction and door closing sequences are performed independently for each gear via hydro-mechanical sequence valves :

- door sequence valves controlled by the gear
- gear sequence valves controlled by the doors

(2)Sequence principle

The landing gear selector valve and each door sequence valve are essentially two series-connected 3-position switches.

The selector valve is controlled by the position of the landing gear control lever ; UP-Neutral-DOWN.

The sequence valves are controlled by the position of the gear : Uplocked-Moving-Downlocked.

With the door fully open, the gear sequence valve opens and supplies the appropriate side (extension or retraction) of the associated gear actuating cylinder.

This feature is such that :

- As long as the gear is not in the selected position, the gear door actuating cylinder and uplock are pressurized open.
- The gear door in fully open position allows gear extension or retraction as appropriate : lock release - movement - uplock or downlock.
- As soon as the gear uplocks or downlocks, the gear doors close uplock and remain pressurized closed.

With the landing gear Normal control lever in Neutral position, the normal in-flight gear retracted position, all actuating cylinder chambers are connected to Green reservoir return.

(3)Landing gear retraction safeties

An anti-retraction latch (interlock) in the landing gear control lever switch unit inhibits selection of the lever to UP position as long as the landing gear is not in flight configuration :

- Nose gear shock absorber extended (wheels centered by cam)
- Main gear shock absorbers extended
- Bogie beams aligned

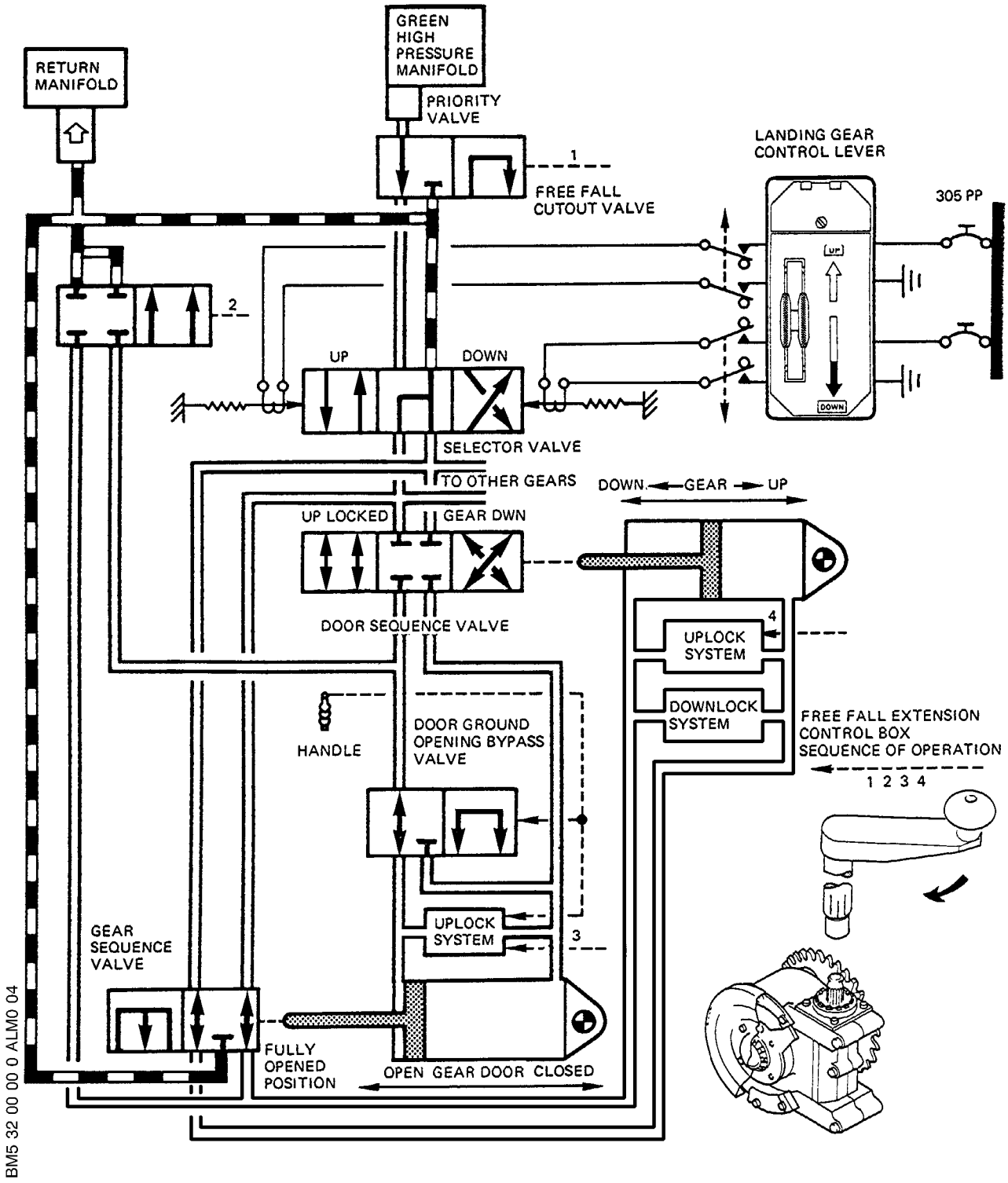
The detection system is duplicated for safety reasons and monitored by the ECAM (Electronic Centralized Aircraft Monitoring) system which advises crew to select other system, via the POSITION DET switch, or that landing gear should not be retracted.

B. Landing gear Free Fall extension - (Ref. 32-33-00, P. Block 1)
In the event of Normal system failure, the landing gear can be extended mechanically from the flight compartment by means of a crank handle.
Rotation of the handle controls the following sequence of events :

Event	Number of turns
(1)Shutoff of high pressure supply	7
(2)Connection of gear and door actuating cylinder retraction chambers to reservoir return	14
(3)MLG door uplock release	15 to 16
(4)NLG door uplock release	18.25 to 18,5
(5)MLG uplock release	18. to 18,5
(6)NLG uplock release	18 to 19
(7)Mechanical stop	20.4

The landing gear extends under free fall action. Downlocking is assisted by locking springs for the main gear and aerodynamic forces for the nose gear. The gear doors remain open.
A procedure is provided for restoring the landing gear to normal operating condition to enable gear retraction after a Free Fall extension during training flights.

C. Landing Gear Door Ground Opening (Ref. 32-31-00, P. Block 1 para 5)
For ease of maintenance each gear door can be opened separately by means of a lever located near the door.
Operation of the lever isolates the door closing line, interconnects the door actuating cylinder chambers and releases the door uplock ; the door free falls to open position.
When the lever is returned to CLOSED position, door closure is achieved under Green hydraulic pressure provided the landing gear Normal control lever is in DOWN position.



Landing Gear Extension and Retraction - Schematic
Figure 028

R

D. Indicating and Warning

Two indicators respectively located on the center instrument panel and overhead panel, supplied with **EMERGENCY** and **NORMAL 28VDC** and connected to system 1 and 2 microswitches and proximity detectors, provide the following indications for each of the three gears :

- Door not uplocked (the 2 nose gear doors) : amber **DOOR** legend
- Gear not locked in selected position (disagree) : red **UNLK** legend
- Gear downlocked : Green arrow

The following warnings are generated and displayed on the L **ECAM CRT** display unit with the associated corrective action :

- Incorrect shock absorber or bogie beam configuration in flight.
- **SYS** 1 or 2 gear lock indicating or retraction safety failure
- Gear not uplocked or downlocked
- Gear not downlocked in approach (< 1000ft)
- Gear not downlocked in landing configuration

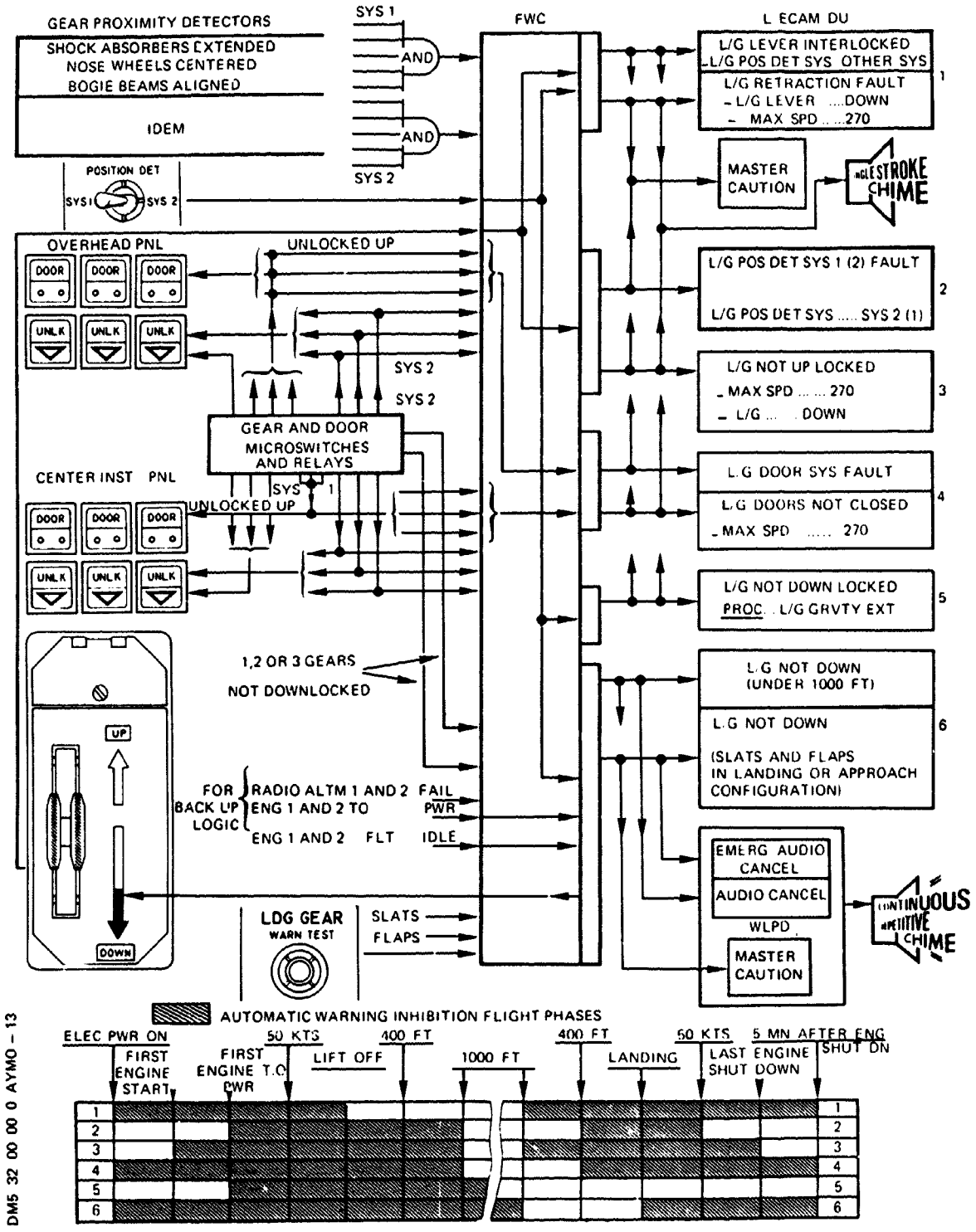
The last two warnings are also accompanied by illumination of the red arrow on the landing gear control lever switch unit. The last warning can be simulated by pressing the **WARN TEST** pushbutton switch and is accompanied by a repetitive chime which can be inhibited via the **EMER AUDIO CANCEL** switch.

In Free Fall extension mode, placing the landing gear **N**ormal control lever in **DOWN** position prevents the red **UNLK** legends remaining on after gear downlock.

If necessary gear downlock can be checked visually.

- main gear : from the passenger compartment by means of two studs protruding from the wing above each main gear.
- nose gear : from the avionics compartment where a viewing window serves to check a visual indicator on the nose gear telescopic strut.

(Ref. Fig. 029)



Extension and Retraction Indicating and Warning
Figure 029

7. Braking

A. Wheels and Brakes - (Ref. 32-40-00, P. Block 1)

The eight main gear wheels are equipped with multidisc brakes each operated by two independently supplied sets of pistons ; one set supplied by the Green hydraulic system, the other by the Yellow hydraulic system assisted by two brake accumulators.
Each brake is equipped with an automatic adjuster, wear indicator and temperature sensor.
The wheels are fitted with tubeless tires.
A nose and main gear tire pressure indicating system (TPIS) can be installed as an option. This system serves to inform the flight crew that the tire pressure is sufficient for a safe takeoff.
The nose gear wheels are braked by brake bands at the end of the gear retraction cycle.
The main gear wheels are fitted with fusible plugs which protect against tire and wheel burst in the event of overheat.
Fans to speed up brake cooling are available as an option.

B. Anti Skid System

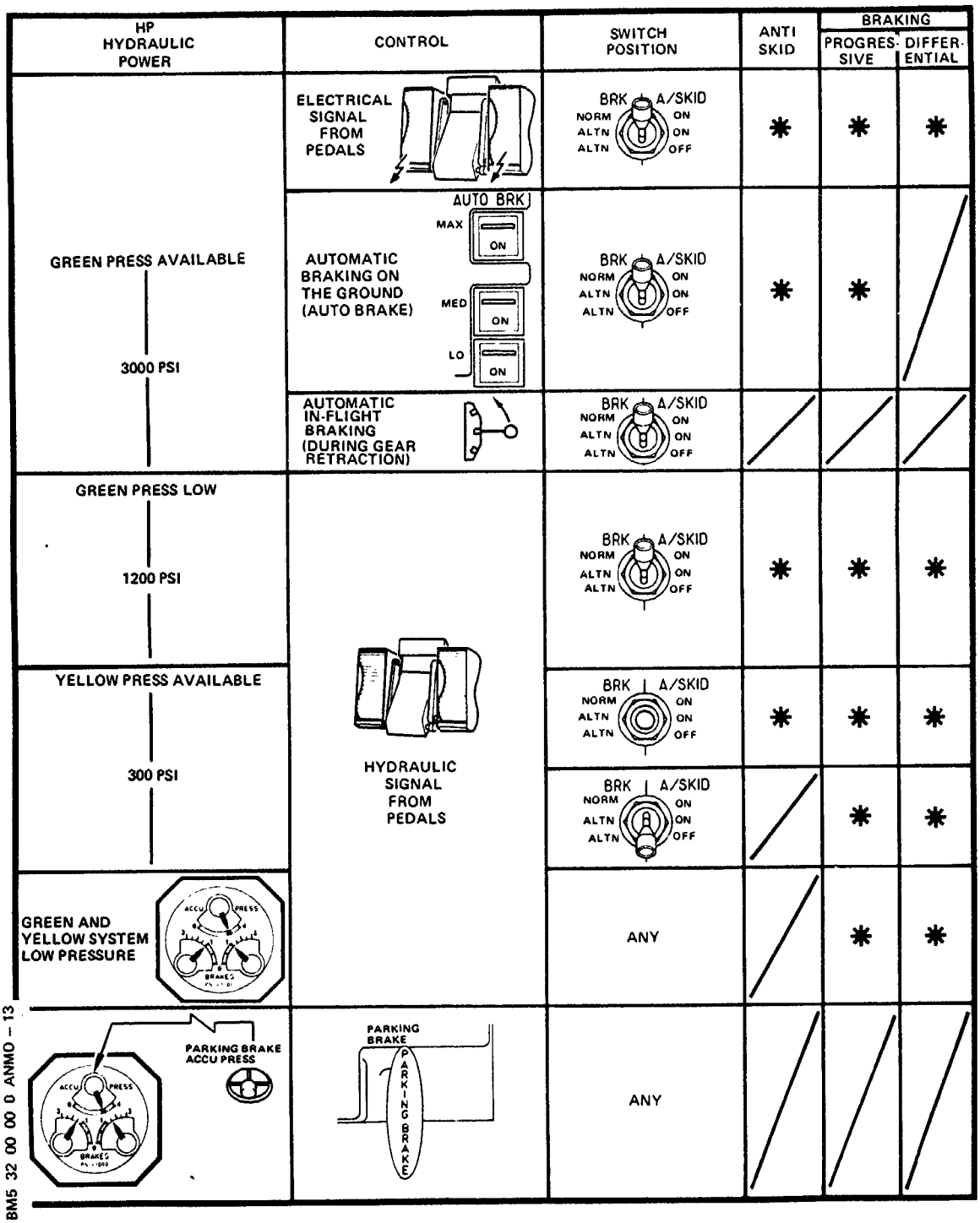
An anti skid system, based on the comparison of the rotational speed of the nose and main gear wheels, provides for maximum braking efficiency, by maintaining the wheels at the limit of an impending skid while preventing the wheels from locking and thus protecting the tires. Brake release orders are sent to the eight Normal, or to the four Alternate, servovalves as well as to the ECAM system which provides CRT display of the released brakes and the actions and limitations associated with the various failures.
The three-position BRK/A/SKID, NORM/ON, ALTN/ON, ALTN/OFF switch on the center instrument panel serves to switch from the Green system to the Yellow system in the event of partial failure of the anti skid system, or to test the Yellow system (ALTN/ON) and, if necessary, to deactivate the anti skid sytem (ALTN/OFF).

C. Braking Modes (Ref. Fig. 030)

Four braking modes are available depending on the hydraulic supply systems and the position of the BRK/A/SKID switch and the PARKING BRAKE control handle.

(1) Normal braking is obtained when Green high pressure is available, the BRK/A/SKID switch is in NORM/ON position and the PARKING BRAKE control handle is in normal (released) position.
Control is electrical and achieved either
- via the pedals
- or automatically :
  . On the ground by the auto brake sytem (optional)
  . In flight, at the beginning of the gear retraction cycle.

No Normal brake pressure indicator is provided.
A BRK FAIL light alerts the flight crew in the event of certain failures :
- insufficient brake pressure during gear retraction
- anti skid system failure in flight prior to landing with gear down-locked.



Braking Modes
Figure 030

(2)Alternate braking with anti skid (**ALTN/ON**) associates Yellow high pressure with anti skid regulation. This mode is obtained by selecting the position **ALTN/ON** or automatically with **BRK/A/SKID** switch in **NORM/ON** position if Green pressure is not available or drops during braking. Automatic switching between the Green and Yellow systems is achieved by a reversible hydraulic selector.
Control is achieved solely via the pedals. The orders are transmitted by an auxiliary low pressure hydraulic system. The pressure delivered to the left and right brakes is indicated on a Yellow pressure triple indicator located on the center instrument panel. The anti skid system and associated indicating are operative.

(3)Alternate braking without anti skid (**ALTN/OFF**) differs from the preceding mode in that anti skid regulation is no longer available :
- deactivated electrically (**BRK/A/SKID** switch in **ALTN/OFF** position or power supply failure)
- deactivated hydraulically if the brakes are supplied by the brake accumulators only (in this case the position of the **BRK/A/SKID** switch is irrelevant). Switching between the Yellow high pressure system and the accumulators is automatic and reversible.

The accumulators, the pressure of which is read on the brake Yellow pressure triple indicator, can be recharged by pressing the **ACCU PRESS** pushbutton switch controlling the Yellow electric pump. The accumulators are dimensioned to supply at least seven full brake applications.

(4)Parking braking
Operating the **PARKING BRAKE** control handle deactivates the other braking modes and supplies the brakes with Yellow high pressure or accumulator pressure limited at 145 bars (2103 psi). The return lines are shut off to ensure an autonomy of at least 12 hours. The **TO CONFIG** warning alerts the flight crew if the **PARKING BRAKE** control handle is in the on (applied) position and one engine at full throttle.

D. Auto Brake (optional)
This system serves to reduce the delay in braking in the event of an acceleration-stop (MAX mode) or limit the deceleration upon landing to a preselected value.
The flight crew arms the system by pressing the LO, MED or MAX pushbutton switch which comes on white provided that Normal braking is operational and the accelerometer test correct. Braking is initiated by the ground spoiler extension command. The green ON legend incorporated in the pushbutton switch comes on when the selected deceleration rate is attained. The system is disarmed by the loss of one or more of the arming conditions or by applying sufficient pressure to the pedals with the aircraft on the ground or upon landing gear retraction. Disarming of the system is indicated by the flashing of the amber AUTO BRK legend except when the result of landing gear retraction.

E. Brake Temperature System
The system serves to measure the temperature at each of the eight brakes, provide temperature readout on the right ECAM display unit, generate an overheat warning and, if necessary, warn the flight crew via the left ECAM display unit, that takeoff should be delayed or the gear extended.

F. Ground Tests and Bite
(Ref. Fig. 031)
An ANTI SKID/TEST 1/TEST 2 switch and a BRK TEMP/TEST pushbutton switch located on the maintenance panel serve to test the anti skid system, by simulating a rotational speed for each of the nose gear wheels, and to test the measurement channels by simulating a given temperature above the warning triggering threshold.
The brake system control unit BITE function continuously monitors the electrical control and regulation functions via a microprocessor which is also used for the auto brake system. A specific sequence of maintenance tests is also incorporated in the control unit. The faults detected are memorized, indicated by a BITE/DISPLAY annunciator on the maintenance panel and can be called up on the face of the control unit located in the avionics compartment.

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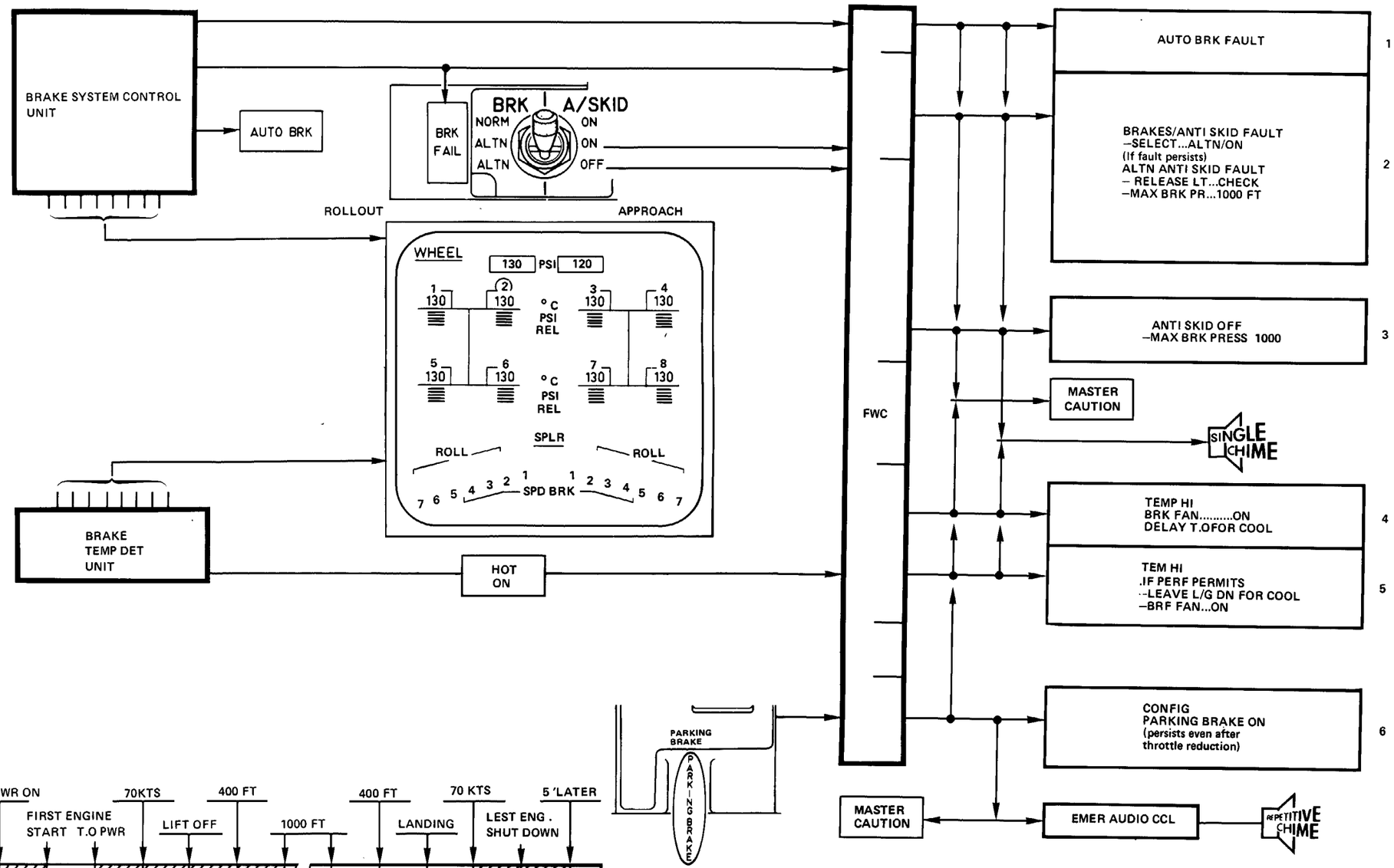

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Brake Warnings
Figure 031

EFFECTIVITY: ALL

R

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8. Steering

(Ref. Fig. 032)

Nose wheel steering is possible by means of a servomechanism mechanically controlled from the flight compartment and powered by Green hydraulic pressure tapped from the landing gear extension system via a selector valve. The selector valve shuts off pressure to the steering system when the shock absorbers are extended during ground towing or when the engines are shut down.

A towing lever on the interphone box enables the steering system to be deactivated for towing purposes. Nose wheel deflection of ± 95° is possible in this configuration.

Independent control is achieved using either of the steering control handwheels located on each side of the flight compartment. Maximum nose wheel steering angle is then ± 65°.

A non-reversible connection with the rudder pedals is achieved by means of a mechanical coupler and enables nose wheel steering limited to ± 6° during high speed ground roll.

An internal cam mechanism returns the wheels to centered position after takeoff.

In the absence of Green hydraulic pressure the aircraft can be guided using the Alternate differential braking system.

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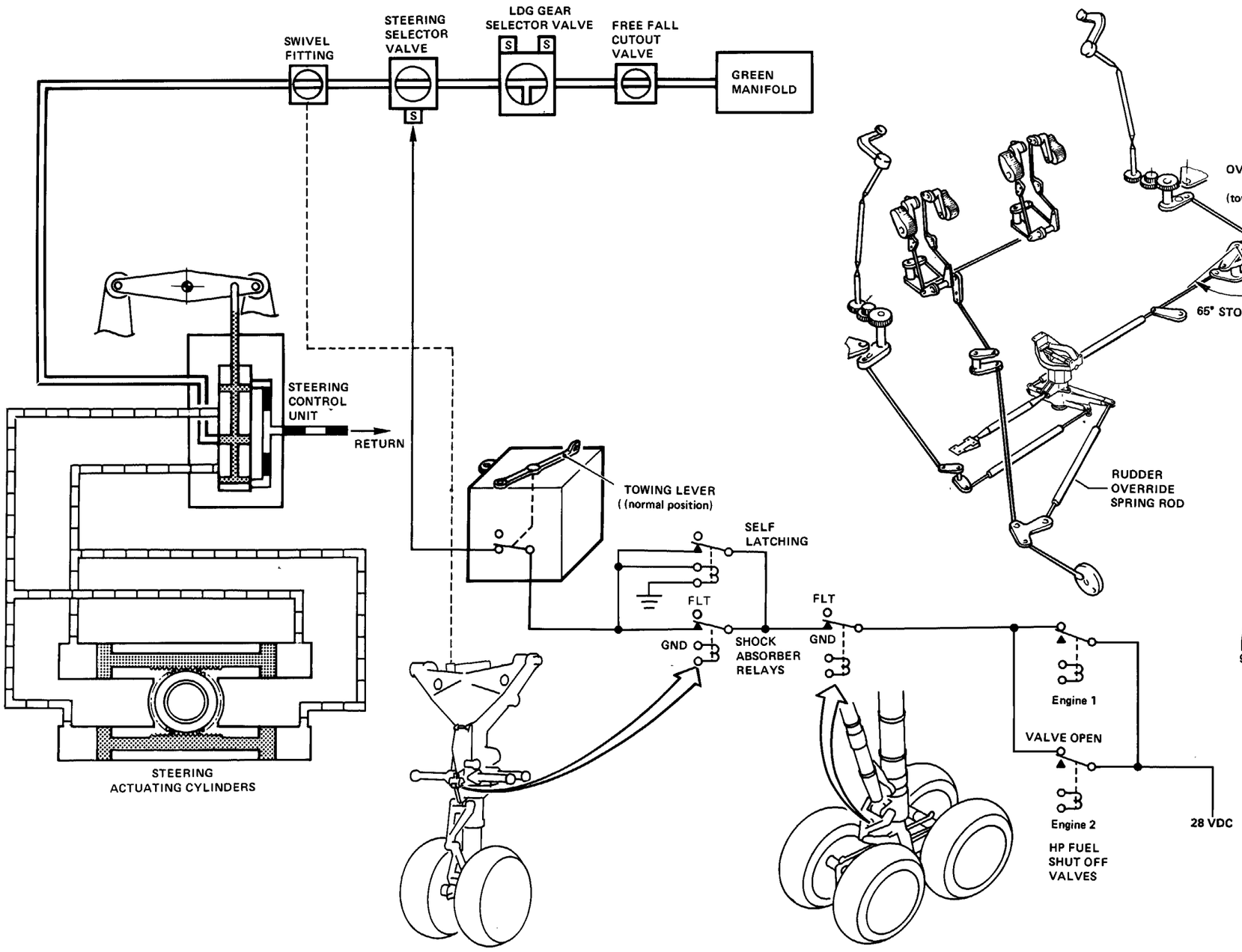

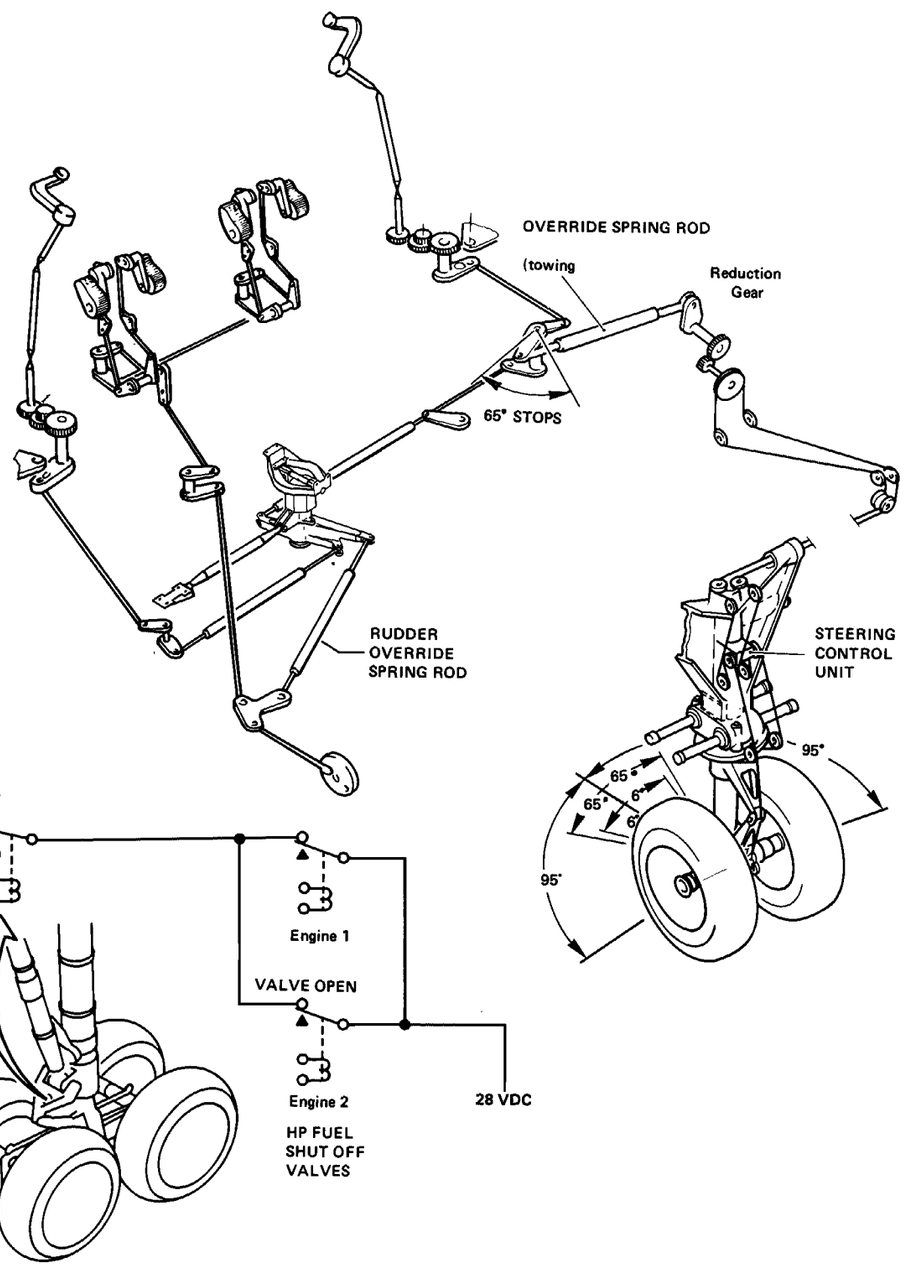

Nose Wheel Steering - Schematic
Figure 032

WARNING : BEFORE PROCEEDING WITH MAINTENANCE WORK ON OR NEAR MECHANICAL FLIGHT CONTROLS OR PRIMARY FLIGHT CONTROL SURFACES, LANDING GEARS, ASSOCIATED DOORS OR ANY MOVING COMPONENT, MAKE CERTAIN THAT GROUND SAFETIES AND/OR WARNING NOTICES ARE IN CORRECT POSITION TO PREVENT INADVERTENT OPERATION OF CONTROLS.

BEFORE POWER IS SUPPLIED TO THE AIRCRAFT MAKE CERTAIN THAT ELECTRICAL CIRCUITS UPON WHICH WORK IS IN PROGRESS ARE ISOLATED.

BEFORE PRESSURIZING HYDRAULIC SYSTEMS, MAKE CERTAIN THAT HYDRAULIC SYSTEM UNDER MAINTENANCE HAS BEEN ISOLATED.

1. Safety Precautions Necessary During Maintenance Work on Aircraft

WARNING : WHEN WORKING ON AIRCRAFT, ESPECIALLY WITHIN GEAR AND DOOR TRAVEL RANGES, THE FOLLOWING PRECAUTIONS MUST BE OBSERVED.

A. Equipment and Materials

ITEM	DESIGNATION
(1)98A32101510000	Safety Pin - MLG Door Locking
R (2)C47281-1000	Safety Collar - Nose Gear Door Actuating Cylinder
(3)98A3210150000	Safety Collar - MLG Door Actuating Cylinder

B. On panel 4VU
- make certain that landing gear control lever is in DOWN position.

Between First Officer's and Flight Engineer's seats
- make certain that landing gear Free Fall extension control handle is in Normal position.

WARNING : BEFORE INSTALLING THE GROUND SAFETY PINS, MAKE CERTAIN THAT THE LANDING GEAR IS DOWNLOCKED.
THIS IS ACHIEVED BY CHECKING THAT :
- IN FLIGHT COMPARTMENT, ON PANELS 400VU AND 76VU LH-NOSE-RH GREEN ARROWS ARE ON.
- DOWNLOCK VISUAL INDICATORS ARE VISIBLE ON WINGS (MAIN GEARS) AND ON TELESCOPIC DRAG STRUT (NOSE GEAR).

C. Make certain that nose and main gear ground safety pins are installed :
(1)On main gear lock link assemblies
(Ref. Fig. 301)
(2)On nose gear telescopic drag strut
(Ref. Fig. 302)

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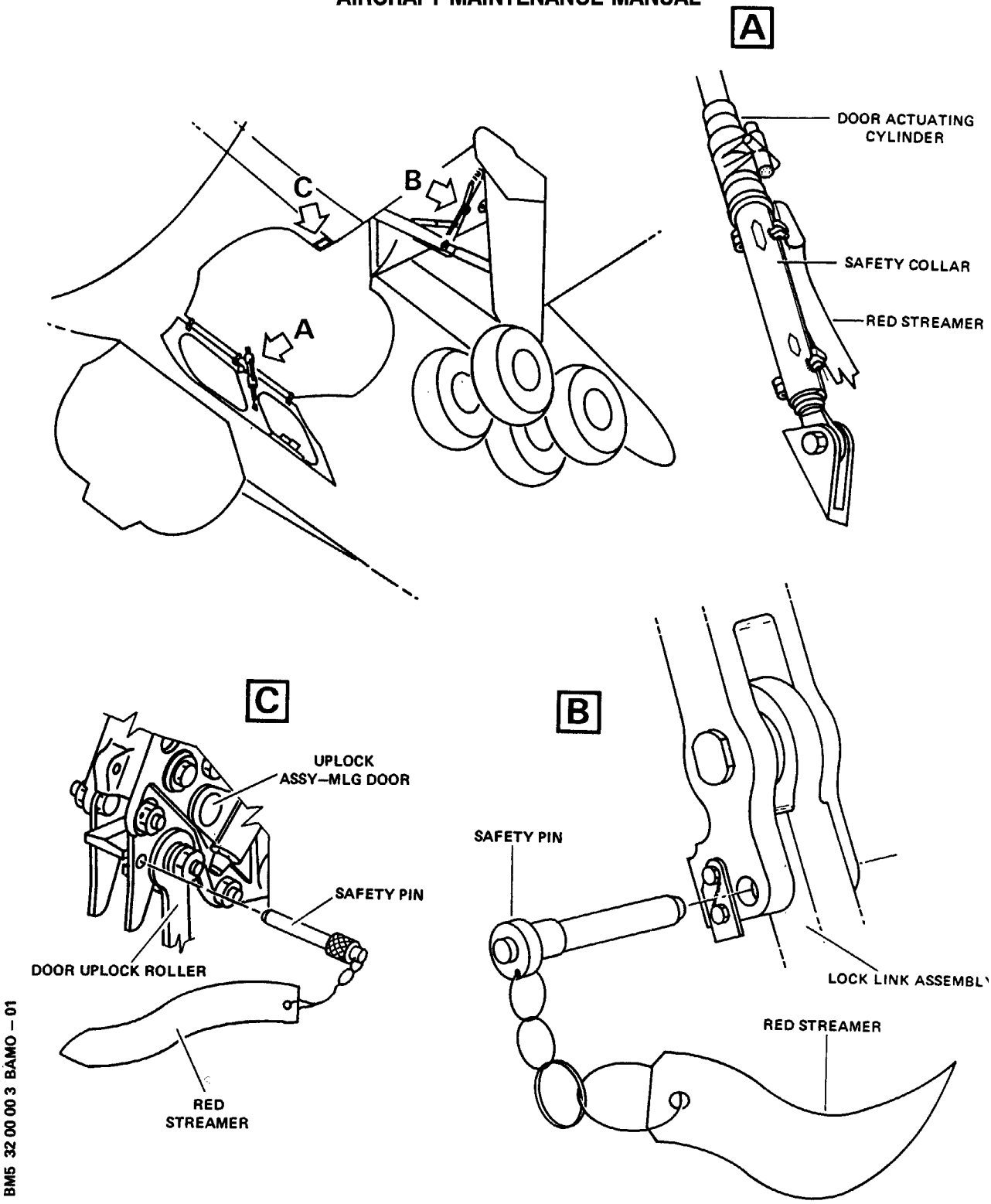
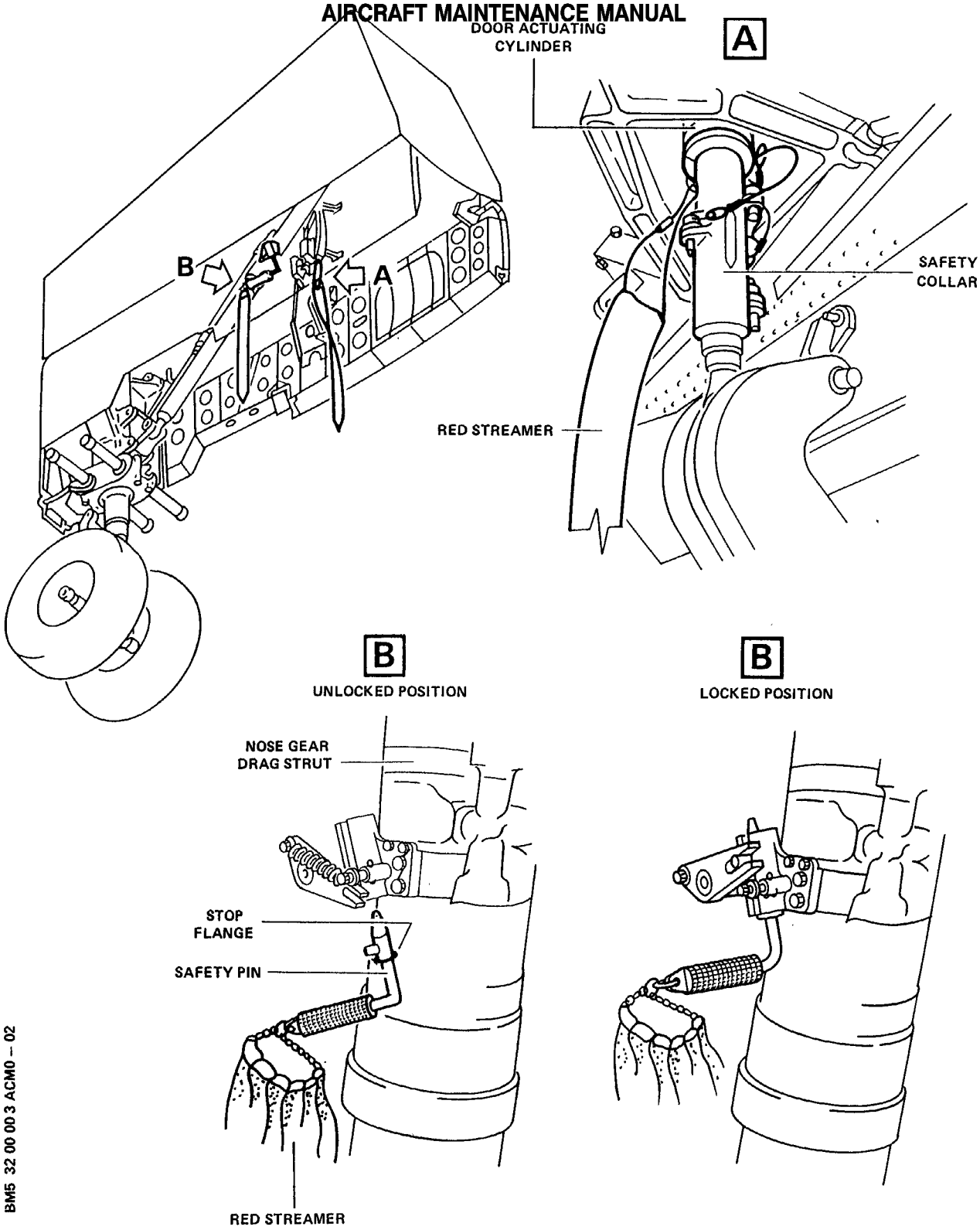
R Post SB 32-2068 For A/C 105-200,



Main Gear - Location of Safety Equipment
Figure 301

R



Nose Gear - Location of Safety Equipment
Figure 302

R

(Ref. Fig. 303)

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WARNING : WHENEVER THE GROUND SAFETY PIN IS INSTALLED ON THE NOSE GEAR TELESCOPIC STRUT, ALWAYS VISUALLY CHECK THAT :
- IT HAS COMPLETELY AND EASILY ROTATED THE FORK-TYPE LEVER OF THE GROUND LOCKING SYSTEM.
- ITS STOP FLANGE ABUTS AGAINST THE HOUSING OF THE TELESCOPIC STRUT LOCKING SYSTEM. (FULL INSERTION).

WARNING : WHEN THE GROUND SAFETY PIN IS REMOVED, VISUALLY CHECK THE DOWN POSITION OF THE FORK-TYPE LEVER ON THE TELESCOPIC STRUT GROUND LOCKING SYSTEM.

D. Make certain that wheel chocks are in position

E. Between First Officer's and Third Occupant's seats
- make certain that Free Fall extension control handle is in Normal position.

F. Before lowering aircraft from jacks onto wheels.
(1)Make absolutely certain that the gears are downlocked :
WARNING : MAKE ABSOLUTELY CERTAIN THAT THE GEARS ARE DOWNLOCKED BY CHECKING THAT :
- IN FLIGHT COMPARTMENT, ON PANELS 400VU AND 76VU LH-NOSE-RH GREEN ARROWS ARE ON.
- DOWNLOCK VISUAL INDICATORS ARE VISIBLE ON WINGS (MAIN GEAR) AND ON TELESCOPIC DRAG STRUT (NOSE GEAR).

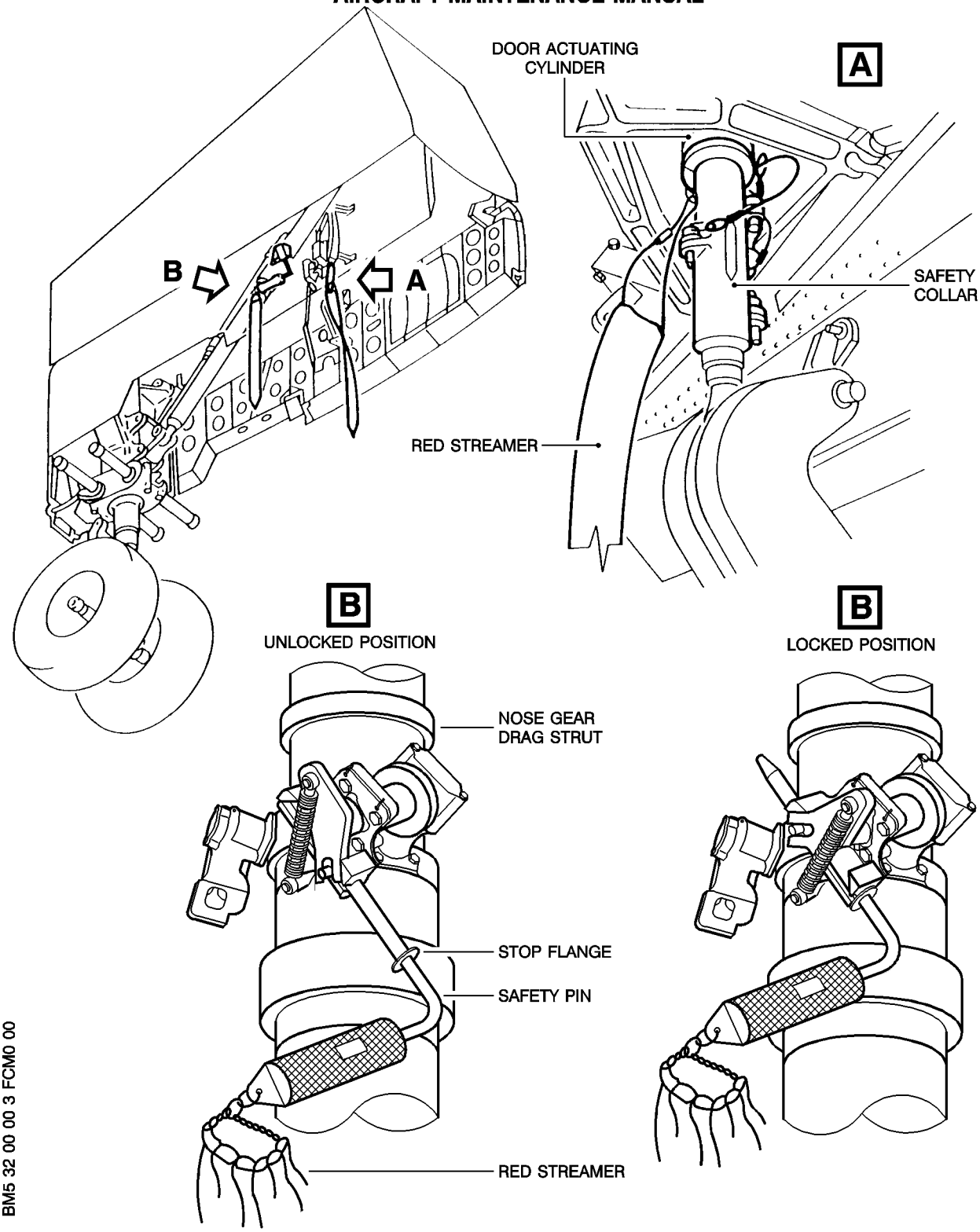
(2)Install all safety equipment on main and nose gears.
WARNING : WHENEVER THE GROUND SAFETY PIN IS INSTALLED ON THE NOSE GEAR TELESCOPIC STRUT, ALWAYS VISUALLY CHECK THAT :
- IT HAS COMPLETELY AND EASILY ROTATED THE FORK-TYPE LEVER OF THE GROUND LOCKING SYSTEM.
- ITS STOP FLANGE ABUTS AGAINST THE HOUSING OF THE TELESCOPIC STRUT LOCKING SYSTEM. (FULL INSERTION).

WARNING : WHEN THE GROUND SAFETY PIN IS REMOVED, VISUALLY CHECK THE DOWN POSITION OF THE FORK-TYPE LEVER ON THE TELESCOPIC STRUT GROUND LOCKING SYSTEM.

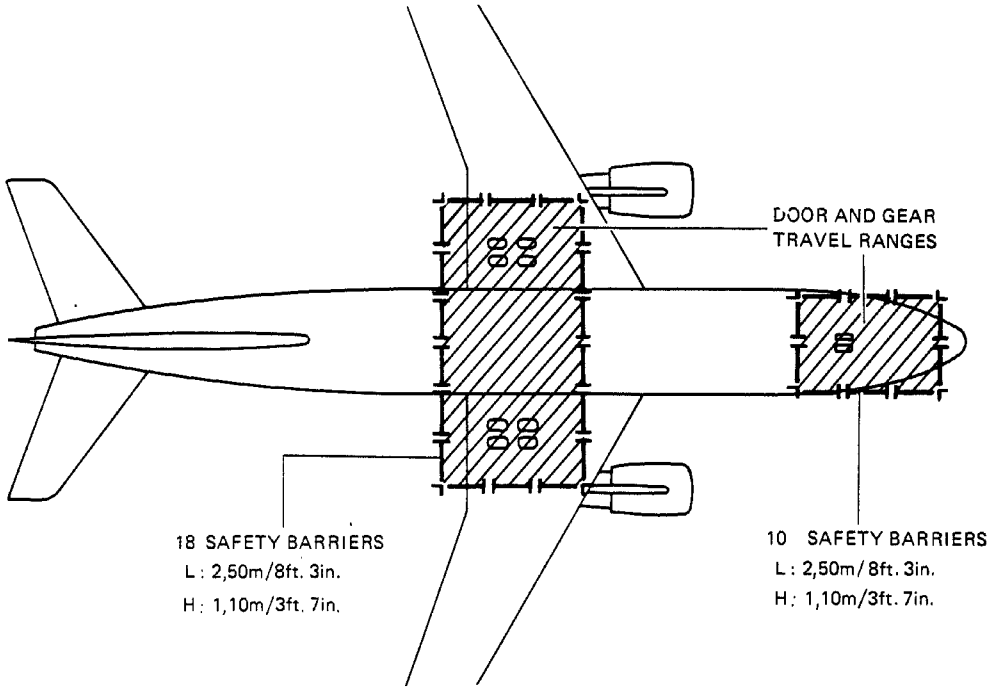
G. When maintenance work includes operation of gears and/or doors, safety barriers, prohibiting access to gear and door travel ranges must be installed
(Ref. Fig. 304)

H. Before proceeding with work :
- Make certain that associated hydraulic systems and reservoirs are depressurized.
- Make certain that associated electrical circuits are isolated.

J. Door opening
(1)Nose landing gear door opening



Nose Gear - Location of Safety Equipment
Figure 303



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Doors and Gears - Safety Barriers
Figure 304

For inspection operations in gear wells, nose gear doors must be opened independently and manually through actuation of corresponding door ground opening control handle. The control handles are installed on the aft doors.

WARNING : FOR SAFETY REASONS STAND AFT OF GEAR LEG WHEN OPERATING DOOR GROUND OPENING CONTROL.

(a)Make certain that safety barriers are in position.

(b)When doors are open, door ground opening control handles are locked in **OPENED** position by means of a safety pin.

WARNING : IMMEDIATELY AFTER OPENING DOORS USING DOOR GROUND OPENING CONTROL AND BEFORE ENTERING GEAR WELL, MAKE CERTAIN THAT SAFETY COLLAR IS INSTALLED ON ACTUATING CYLINDER OF EACH OPEN DOOR

(2)Main landing gear door opening

For inspection operations in gear well, each door is opened manually using independent door ground opening control associated with the door concerned.

A control handle is located at each air conditioning cooling air inlet.

(a)Make certain that safety barriers are in position

(b)After manual opening of doors, door ground opening control handle is locked in **OPENED** position by means of a safety pin.

WARNING : IMMEDIATELY AFTER OPENING DOORS USING DOOR GROUND OPENING CONTROL AND BEFORE ENTERING GEAR WELL, MAKE CERTAIN THAT SAFETY COLLAR IS INSTALLED ON ACTUATING CYLINDER OF EACH OPEN DOOR.

(3)After maintenance work on gears or a component in the gear well perform an inspection.

(a)Make certain that the work is complete (effective safetying and bonding, electrical connectors installed, absence of leaks).

(b)Make certain that work area is clean and clear of tools and miscellaneous items of equipment.

K. Door Closing

(1)Landing gear door closing (Nose and Main).

For each door concerned :

(a)Make certain that door ground opening control handle is locked in **OPENED** position with a safety pin and that Green hydraulic system is depressurized.

(b)Remove safety collar from actuating cylinder of door to be closed.

WARNING : IF OTHER GEAR DOORS ARE OPEN MAKE CERTAIN THAT SAFETY COLLARS ARE INSTALLED ON ASSOCIATED ACTUATING CYLINDERS AND THAT DOOR GROUND OPENING CONTROL HANDLES CONCERNED ARE LOCKED IN OPENED POSITION BY MEANS OF SAFETY PINS.

(c)On panel 4VU

- make certain that landing gear control handle is in **DOWN** position.

(d)Energize the aircraft electrical network

(e)Pressurize Green hydraulic system

WARNING : NOSE GEAR DOORS : FOR SAFETY REASONS STAND AFT OF GEAR LEG WHEN OPERATING DOOR GROUND OPENING CONTROL.

WARNING : MAKE CERTAIN THAT GEAR DOOR TRAVEL RANGES ARE CLEAR.

(f)Each door is closed independently by removing safety pin from the

door ground opening control handle concerned and placing the handle in **CLOSED** position.

(g)Stow safety pin on handle.

(h)Make certain that the door closes and uplocks.

(j)Install safety pin **98A32101510000** to immobilize main gear uplock hook before undertaking maintenance work or performing adjustment of locking controls.

(k)Remove safety pin when maintenance or adjustment is completed.

(l)In flight compartment, make certain that amber **DOOR** annunciators corresponding to closed doors are off.

WARNING : IF DOOR FAILS TO CLOSE AND UPLOCK, DOOR GROUND OPENING CONTROL HANDLE CONCERNED SHALL BE RETURNED TO OPENED POSITION AND LOCKED IN OPENED POSITION BY MEANS OF SAFETY PIN. (PROBABLE CAUSE : LACK OF PRESSURE IN LANDING GEAR HYDRAULIC SYSTEM).

L. Aircraft Grounding

Before proceeding with maintenance work on the aircraft make certain that it is correctly grounded.

Each main gear is equipped with a ground connector located inboard on shock strut at the upper torque link attachment.

2. Hydraulic Fluid - Safety Precautions

A. Equipment and Materials

ITEM	DESIGNATION
(1)	Barrier Cream
(2)	Goggles
(3)Material No. 11-003	Cleaning Agents (Ref. 20-31-00)
or Material No. 11-006	Cleaning Agents (Ref. 20-31-00)

B. Precautions

Prior to any servicing of the hydraulic system, personnel shall observe and thoroughly understand the following precautions when working with hydraulic fluid.

WARNING : OBSERVE THE FOLLOWING SAFETY PRECAUTIONS WHEN WORKING ON THE HYDRAULIC SYSTEM. LONG EXPOSURE TO HYDRAULIC FLUID CAN CAUSE SKIN DEHYDRATION AND CHAPPING.

(1)Wash hands thoroughly with soap and water before starting work.

(2)Apply barrier cream to hands, wrists, and forearms. Rub cream under fingernails and into creases of skin.

(3)Wear goggles when pressure testing components or systems, and whenever there is a possibility of hydraulic fluid splashing into the eyes.

(4)If hydraulic fluid splashes into eyes, treat eyes immediately by irrigating thoroughly with clear cold water, and report the incident.

(5)Wash hands, wrists, and forearms with soap and hot water whenever they have been in contact with hydraulic fluid.

(6)If clothing becomes soaked with hydraulic fluid, remove clothing as soon as possible, thoroughly wash skin, and put on clean clothing.

C. Technical Precautions

Prior to any servicing of the hydraulic system, personnel shall observe and thoroughly understand the following precautions.
Careful adherence to the instructions will aid in maintaining a functional and trouble-free system.

CAUTION : OBSERVE THE FOLLOWING TECHNICAL PRECAUTIONS WHEN WORKING ON THE HYDRAULIC SYSTEM. HYDRAULIC FLUID WILL ATTACK A WIDE RANGE OF MATERIALS INCLUDING RUBBER, COPPER, VARIOUS PLASTICS, AND PAINTS.

CAUTION : PRIOR TO INSTALLING A HYDRAULIC OR ELECTRO-HYDRAULIC REPLACEMENT COMPONENT, MAKE CERTAIN THAT COMPONENT IS COMPATIBLE WITH FLUID CONTAINED IN THE AIRCRAFT HYDRAULIC SYSTEM (REFER TO SELF-ADHESIVE LABEL ON COMPONENT).

(1) Ensure that hydraulic fluid does not come into contact with aircraft outside of hydraulic system. Keep spillage to an absolute minimum. Clean up spilled hydraulic fluid immediately to prevent entry into adjacent areas and to prevent future false hydraulic leak reports. If spillage occurs, wipe up the fluid with a dry cloth, and wash contaminated area with solvent (Material No.11-003 or 11-006 Ref. 20-31-00).

WARNING : CLEANING OPERATIONS USING SOLVENTS SHOULD BE PERFORMED IN A WELL VENTILATED ATMOSPHERE.
EXERCISE NORMAL SAFETY PRECAUTIONS DURING USE.

(2) When washing metal parts before assembly, use only solvent (Material No.11-003 or 11-006, and ensure that all traces of the solvent are removed before assembly.

(3) Use only approved hydraulic fluid when filling reservoirs, filter bowls, pumps, etc., before installation of components.

CAUTION : USE ONLY APPROVED HYDRAULIC FLUID (REF. 20-31-00). UNAPPROVED HYDRAULIC FLUIDS CAN CAUSE DAMAGE TO AIRCRAFT SYSTEMS.

(4) Use only approved hydraulic fluid for flushing or testing hydraulic components.

(5) Take care to prevent contamination of hydraulic fluid with other unapproved fluids, fuel, oils, water, or dirt.

(6) If a system becomes contaminated with any petroleum-based oil or solvent, drain the system and flush with clean hydraulic fluid.

(7) Prior to connecting hydraulic power or replenishing carts to the aircraft make certain that cart fluid specification meets aircraft requirements.

3. System Line and Component Identification

The lines of each hydraulic system are placarded with Skydrol-resistant bands or identification rings, on which are indicated the system color code, a brief description of the line function, and the direction of fluid flow.
Hydraulic components are identified by means of self-adhesive labels showing component number in accordance with hydraulic system general drawing.
The first number of the component identification is generally 1, 2 or 3 indicating that the component belongs to Green, Blue or Yellow system respectively.
Electro-hydraulic components bear only hydraulic numbers. Electrical identification is not shown.

CAUTION : PRIOR TO INSTALLING A HYDRAULIC OR ELECTRO-HYDRAULIC REPLACEMENT COMPONENT, MAKE CERTAIN THAT COMPONENT IS COMPATIBLE WITH FLUID CONTAINED IN THE AIRCRAFT HYDRAULIC SYSTEM (REFER TO SELF-ADHESIVE LABEL ON COMPONENT).

(Ref. Fig. 305)

4. Recommendations Following Carbon Brake Overheat

(Temp indication equal to or above 650°C (1202°F) or higher and/or wheel fusible plugs).

A. General

- Do not set parking brake.
- If the tire is still inflated, avoid to approach the close area for about one hour. If necessity, approach from rear or front only never from the side i.e. at 90 C to aircraft centerline.
  It is not recommended to spray liquid, water, mist, foam, or other extinguisher on a still inflated tire.

WARNING : DO NOT USE WATER OR ANY OTHER LIQUID TO COOL THE BRAKES. IT IS ALSO PROHIBITED TO SPRAY ANY EXTINGUISHER, EVEN WATER MIST, DIRECTLY ON THE BRAKE CARBON HEAT PACK TO AVOID THERMAL SHOCK.

B. Detailed recommendations

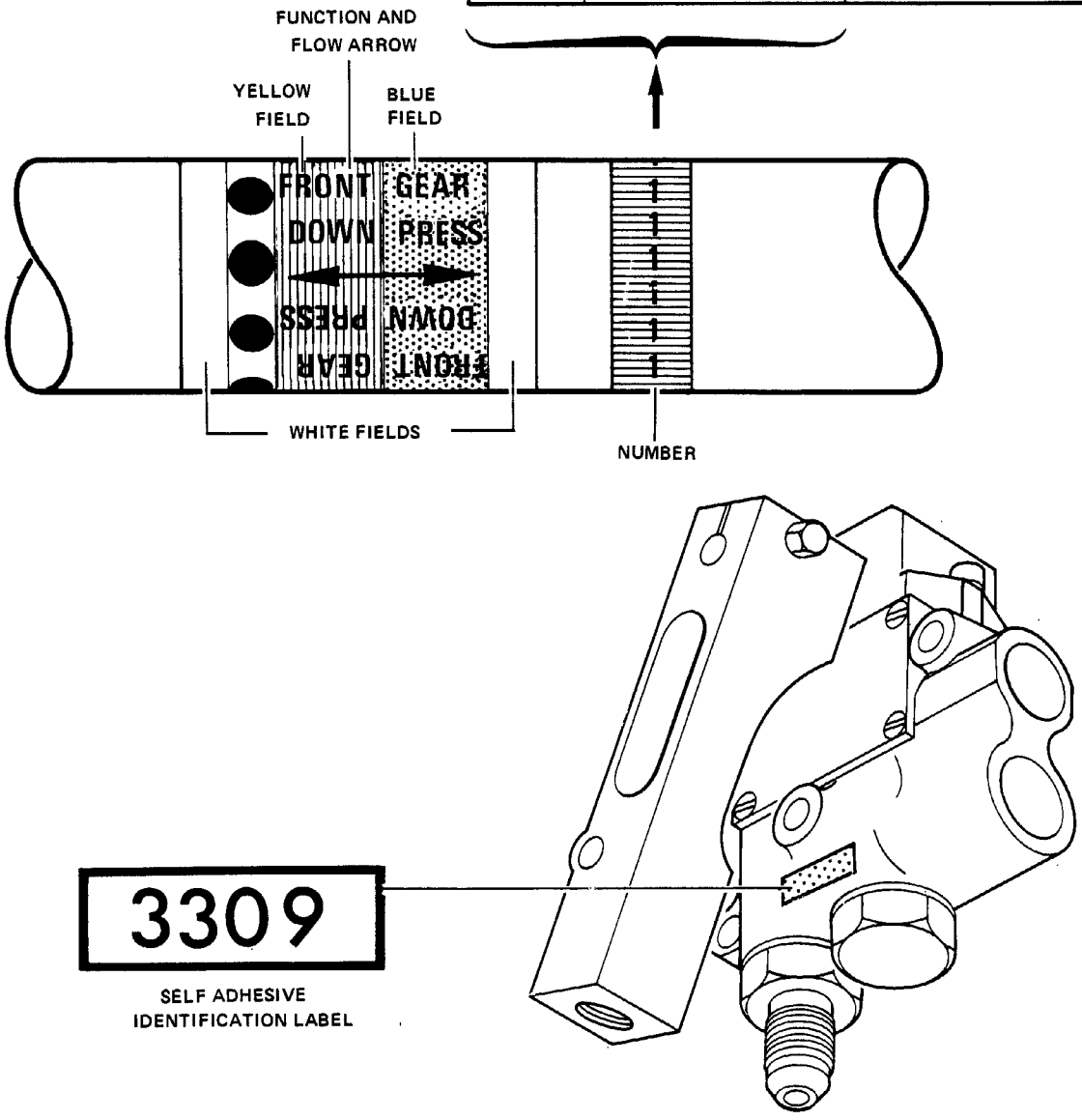
- the most appropriate attitude is to let the brake cooling down naturally without intervention at least for one hour (with brake cooling fans on if any).
  However to save time and to accelerate cooling it is allowed to spray water mist only on surrounding areas of the brake : tire, outer wheel halve (even with brake fans on) and cautiously on the brake piston housing, but never directly on the brake heat-pack or into the wheel to avoid thermal shock.

Note 1 : If water mist is not available, it is also allowed to use a dry air blower equipment or air conditioning cart providing that live burnts or embers are not evidenced on the brake heat-pack.

Note 2 : In case of fluid, grease or tire fire, do not wait for tire deflation, extinguish fire immediately with water mist or CO2 foam extinguisher in standing from rear or front of the wheel.

WARNING : DO NOT USE WATER OR ANY OTHER LIQUID TO COOL THE BRAKES. USE OF POWDER EXTINGUISHER IS NOT RECOMMENDED AS DEPOSIT SMOTHERS FIRE BUT AVOID HEAT DISSIPATION AND MAY RESULT IN

HYDRAULIC SYSTEM NUMBER AND COLOR CODE		
NUMBER	COLOR CODE	SYSTEM
1	GREEN	GREEN SYSTEM
2	BLUE	BLUE SYSTEM
3	YELLOW	YELLOW SYSTEM



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System Line and Component Identification
Figure 305

1. Proximity Detectors

WARNING : CHECK THAT THE LANDING GEAR GROUND SAFETIES INCLUDING WHEEL CHOCKS ARE IN POSITION.
BEFORE POWER IS SUPPLIED TO THE AIRCRAFT, MAKE CERTAIN THAT ELECTRICAL CIRCUITS UPON WHICH WORK IS IN PROGRESS ARE ISOLATED.

**ON A/C ALL

A. Reasons for the Job

(1)Removal/Installation of nose gear torque link proximity detectors.
(2)Removal/Installation of main gear bogie beam proximity detectors.
(3)Removal/Installation of main gear torque link proximity detectors.
(4)Removal/Installation of main gear brace strut proximity detectors.

B. Equipment and Materials

ITEM	DESIGNATION
(1)	Circuit Breaker Safety Clips
(2)	Warning Notice
(3)	Access Platform 2 m - 2.60 m (6 ft. 7 in. - 8ft. 7 in.)
(4)	Lockwire - Corrosion Resistant Steel, Dia. 0.8 mm (0.032 in.)
(5)	Caps
(6)	Blanking Plugs
(7)	Wooden Shim
(8)	Mallet
(9)Material No. 09-001	Sealants (Ref. 20-31-00)
10)Material No. 09-008E	Sealant (Ref. 20-31-00)
11)Material No. 11-002	Cleaning Agents (Ref. 20-31-00)
12)Material No. 08-001	Bonding and Adhesive Compounds (Ref. 20-31-00)
13)Material No. 05-047	Special Materials (Ref. 20-31-00)
Referenced Procedures	
- 07-11-00, P. Block 1	Jacking for Aircraft Maintenance Operations
- 32-00-00, P. Block 501	Landing Gear
- 32-21-11, P. Block 401	Leg (Nose Gear)
- 32-21-14, P. Block 401	Nose Gear Shock Absorber
- 32-31-00, P. Block 501	Normal Extension and Retraction

R **ON A/C 001-100, 105-200,

R Post SB 32-2108 For A/C 001-100,105-200,

A. Proximity Detector List
(1)Removal/installation of nose gear torque link proximity detectors.
(2)Removal/installation of main gear bogie beam proximity detectors.
(3)Removal/installation of main gear torque link proximity detectors.
(4)Removal/installation of main gear brace strut proximity detectors.

B. Equipment and Materials

ITEM	DESIGNATION
(1)	Circuit Breaker Safety Clips
(2)	Warning Notice
(3)	Access Platform 2 m - 2.60 m (6 ft. 7 in. - 8 ft. 7 in.)
(4)Material No. 09-001	Sealants (Ref. 20-31-00)
(5)Material No. 09-008E	Sealant (Ref. 20-31-00)
(6)Material No. 11-002	Cleaning Agents (Ref. 20-31-00)
(7)Material No. 08-001	Bonding and Adhesive Compounds (Ref. 20-31-00)
Referenced Procedures	
- 07-11-00, P. Block 1	Jacking for Aircraft Maintenance Operations
- 32-00-00, P. Block 501	Landing Gear
- 32-21-11, P. Block 401	Leg (Nose Gear)
- 32-21-14, P. Block 401	Nose Gear Shock Absorber
- 32-51-00, P. Block 501	Normal Extension and Retraction

**ON A/C ALL

C. Procedure
(1)Job set-up
(a)On panel 4VU
- make certain that landing gear control lever is in DOWN position and prohibit its operation by displaying a warning notice.
(b)Between First Officer's and Third Occupant's seats
- make certain that landing gear Free Fall extension control handle is in Normal position.
(c)Open, safety and tag the following circuit breakers :
1 For removal/installation of proximity detectors of nose gear torque links, main gear bogie beams and main gear torque links.

PANEL	SERVICE	IDENT.	LOCATION
133VU	HYDRAULIC/L/G PROX DET/& RELAYS SYS2/ FLT/GND	1GB	331/V52
133VU	HYDRAULIC/L/G PROX DET/& RELAYS SYS1/ RELAYS &/RETRACT/CTL	2GB	332/U51
R CAUTION : PRIOR TO OPENING CIRCUIT BREAKER 119GB LOCATED ON PANEL 133VU, TAKE THE APPROPRIATE SAFETY PRECAUTIONS (REF. 32-00-00, P. BLOCK 501).			
133VU	HYDRAULIC/L/G PROX DET/& RELAYS SYS1/	119GB	332/U52

PANEL	SERVICE	IDENT.	LOCATION
	FLT/GND		
	2 For removal/installation of proximity detectors on main gear brace struts.		

PANEL	SERVICE	IDENT.	LOCATION
133VU	HYDRAULIC/L/G PROX DET/& RELAYS SYS1/ GEAR DN &/CTR PNL/POS IND	3GB	332/U53
133VU	HYDRAULIC/L/G PROX DET/& RELAYS SYS2/ GEAR DOWN &/OVHD PNL/POS IND	83GB	331/V51

(d)Position access platform.

D. Removal

NOTE : Carefully clean rubber coating from components to be removed using spatula without damaging component protective finish.

(1)Removal of nose gear torque links proximity detectors.
(Ref. Fig. 401)

R **ON A/C 001-100, 105-200,

R Post SB 32-2108 For A/C 001-100,105-200,

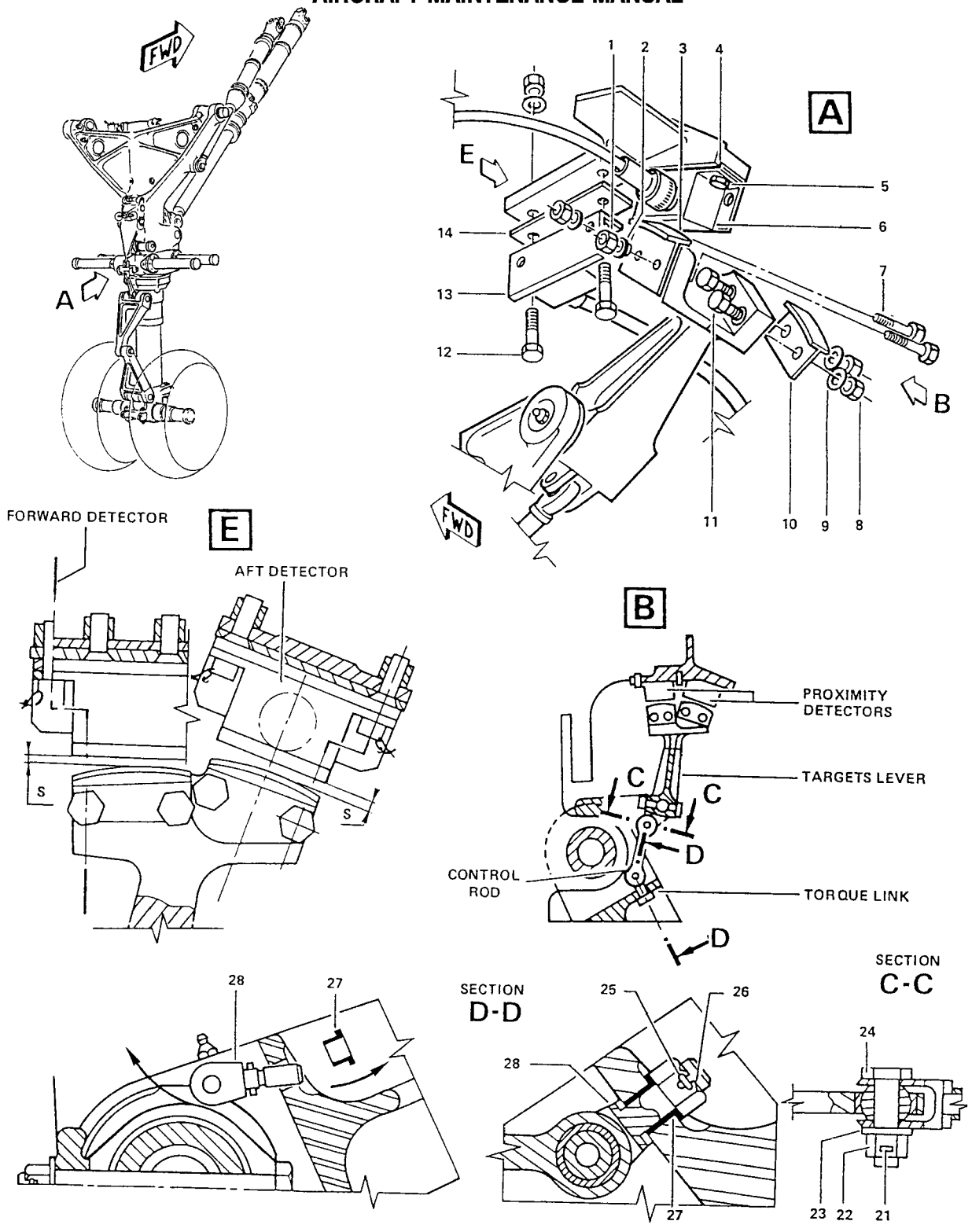
NOTE : Remove and discard heat-shrinkable sleeves when you disconnect connectors from proximity detectors 55GB and 82GB.

**ON A/C ALL

(a)Disconnect proximity detector leads and install protective caps on plugs and receptacles.
NOTE : Make certain that sensors and targets are not scratched and that they bear no signs of impact damage. Mark position of sensor and target assemblies on their respective mountings.

(b)Removal of forward detector
- cut and remove lockwire,
- remove screw (12),
- remove sensor (13) and shim (14),
- remove bolt (11),
- remove and retain for reinstallation nuts (1), washers (2) and targets (3).

(c)Removal of aft detector
- cut and remove lockwire,
- remove screw (5),
- remove sensor (6) and shim (4),
- remove bolt (11),
- remove and retain for reinstallation nuts (8), washers (9) and



BM5 32 00 00 4 BAM0 04

Nose Gear Torque Links - Proximity Detectors
Figure 401

targets (10).

(2)Removal of main gear bogie beam proximity detectors.
(Ref. Fig. 402)

(a)Disconnect proximity detector leads and install protective caps on plugs and receptacles.

(b)Remove bolt (38) and sensor mounting bracket (36)
- remove and discard locknut (37)
- cut and remove lockwire. Remove and lock pin (40).
- remove bolt (38) and remove sensor mounting bracket (36) assembly.
If necessary remove cable clamps.

(c)Remove sensors from mounting brackets
NOTE : When replacing mounting bracket (36), check the clearance. A removal/installation of shims (33) may be required to adjust the clearance.
- remove nuts (35), washers (34), bolts (32), and sensors (31).
Retain sensors for re-installation.

(d)Remove targets and mounting brackets
- remove screws (41) and mounting bracket assembly (42)
- remove bolts (45)
- retain nuts (44), washers (43) and targets (46).

(3)Removal of main gear torque link proximity detectors.
(Ref. Fig. 403)
(Ref. Fig. 404)
NOTE : Make certain that sensors and targets are not scratched and that they bear no signs of impact damage.
Mark position and measure and note total thickness of sensor and target assemblies on their respective moutings.

R **ON A/C 001-100, 105-200,

R Post SB 32-2108 For A/C 001-100,105-200,

NOTE : Remove and discard heat-shrinkable sleeves when you disconnect connectors from proximity detectors 62GB (63GB) and 64GB (65GB).

**ON A/C ALL

(a)Disconnect proximity detector leads and install protective caps on plugs and receptacles.

(b)Remove sensors
remove screws (57), shim (56) and sensor.

(c)Remove targets
- remove nuts (54)
- remove bolts (51) fitted with their washers (55)
- remove targets (52) and shims (53).
NOTE : Note position of shims (56) and (53). Old shims (56) and (53) must be reinstalled in old position.

(4)Removal of main gear brace strut proximity detectors.
(Ref. Fig. 404)

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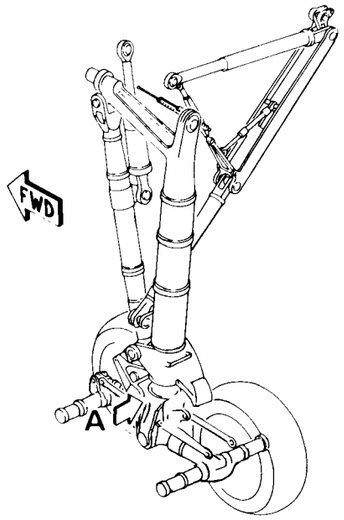
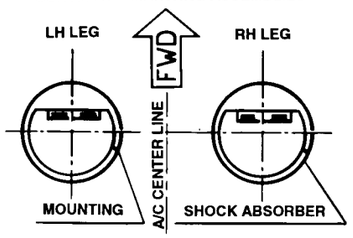
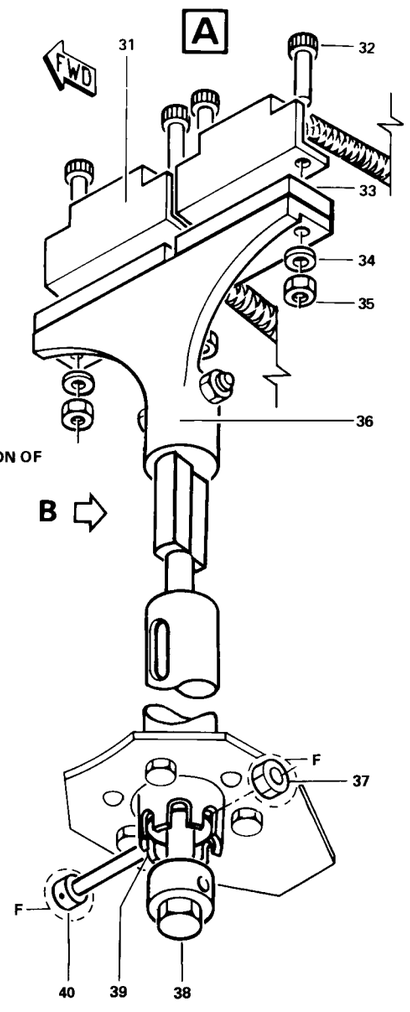


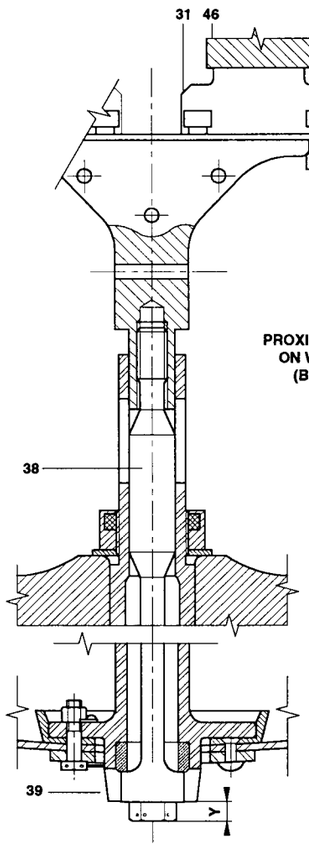
CAUTION: FAILURE TO ADHERE TO THE DIRECTION OF INSTALLATION WILL RESULT IN A NON RETRACTION OF LANDING GEAR

POSITION OF MOUNTING ASSEMBLIES

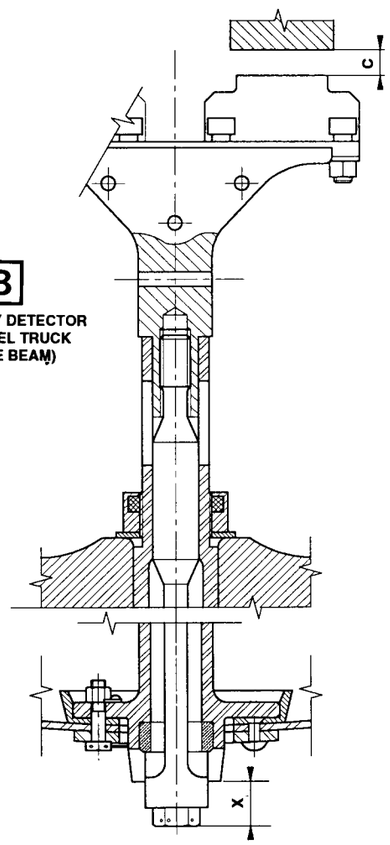


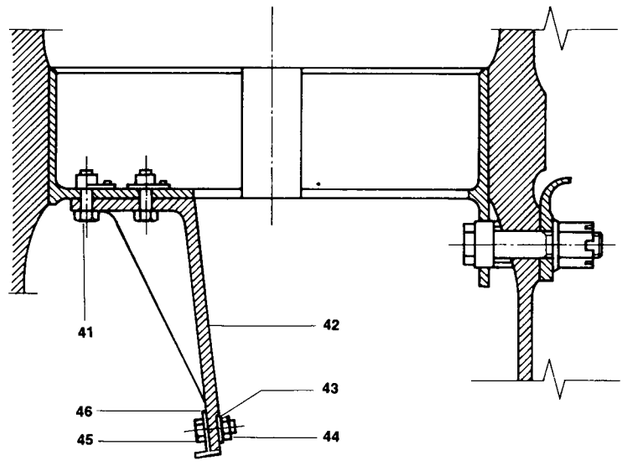


PROXIMITY DETECTOR ON WHEEL TRUCK (BOGIE BEAM)



B
PROXIMITY DETECTOR ON WHEEL TRUCK (BOGIE BEAM)

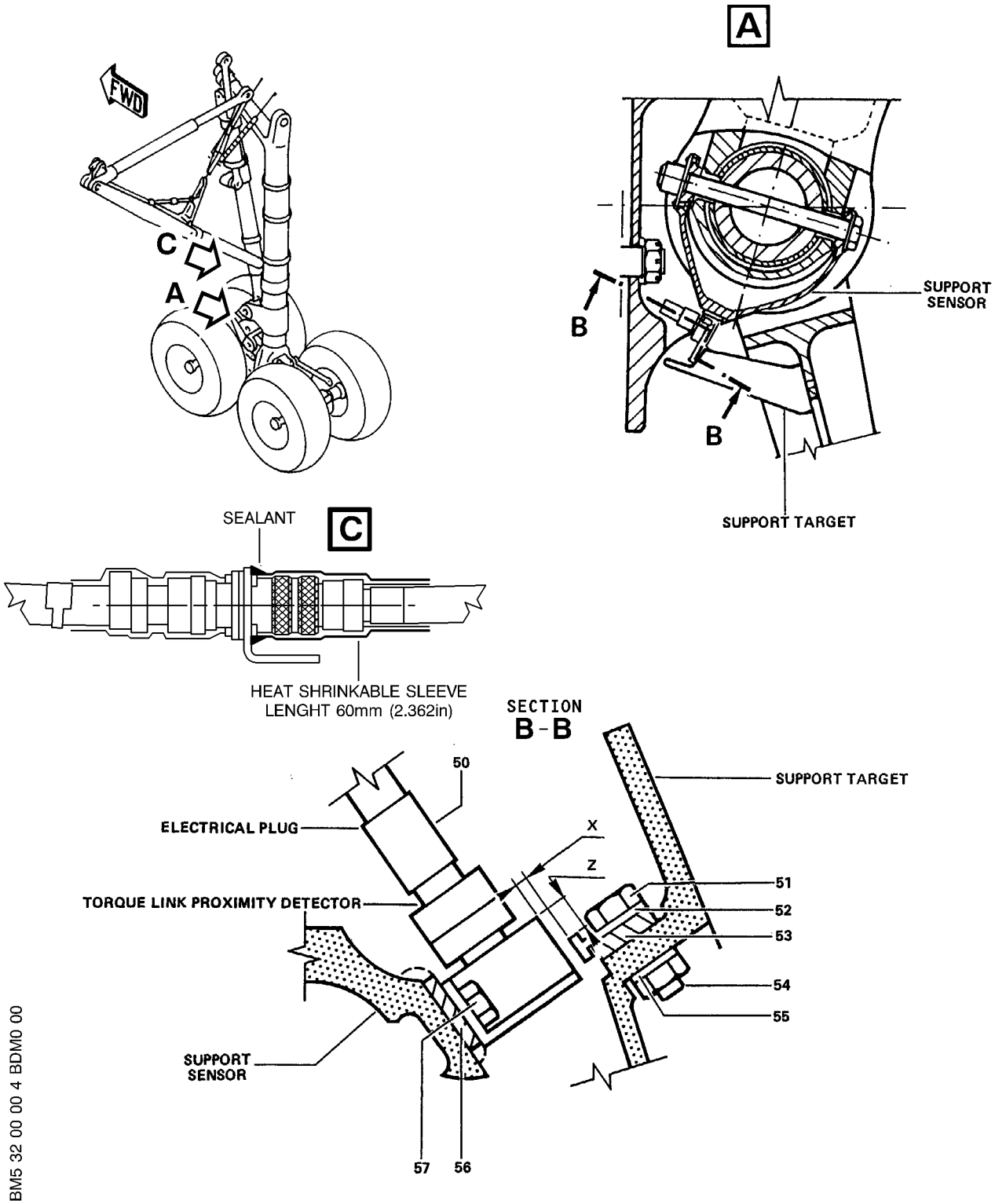




BOGIE BEAM PROXIMITY DETECTORS TARGETS(CEM)

BM5 32 00 00 4 DEM0 – 04

Main Gear - Bogie Beam Proximity Detectors
Figure 402



Main Gear - Torque Link Proximity Detectors
Figure 403

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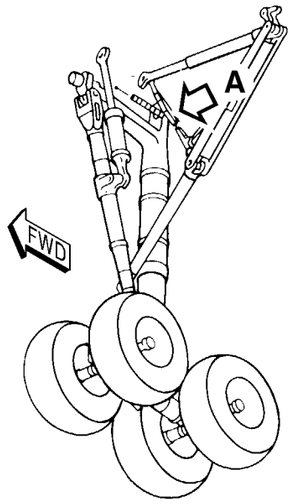
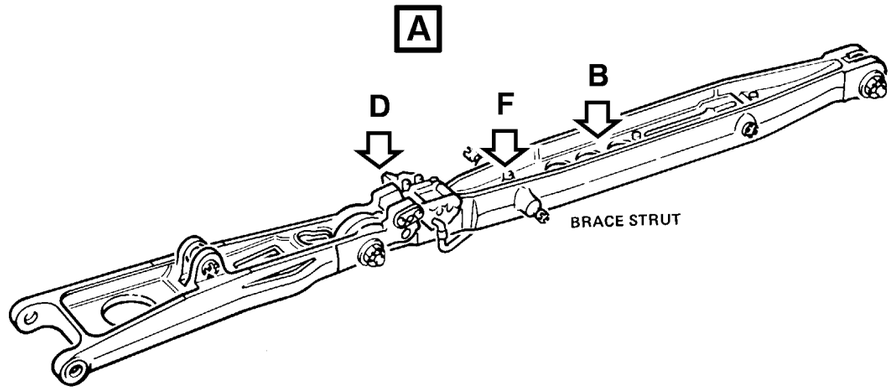
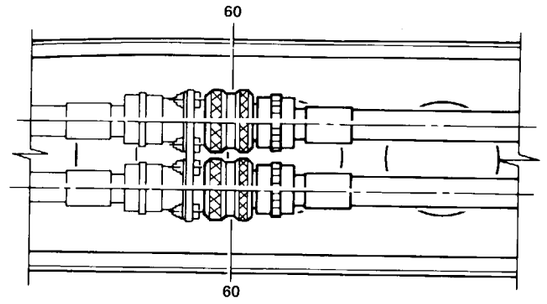


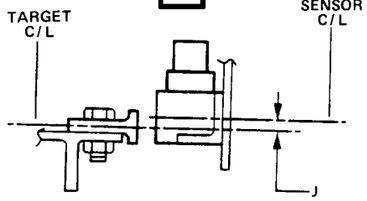
A



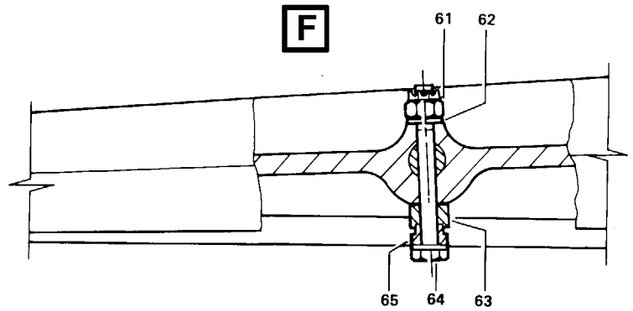
B



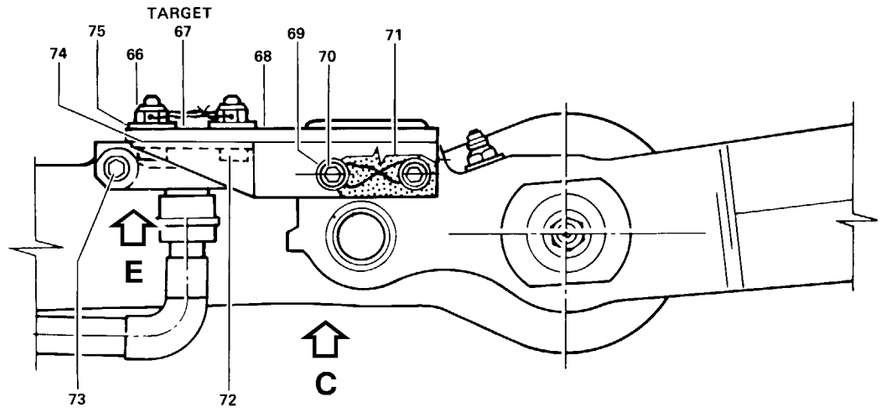
E



F



D



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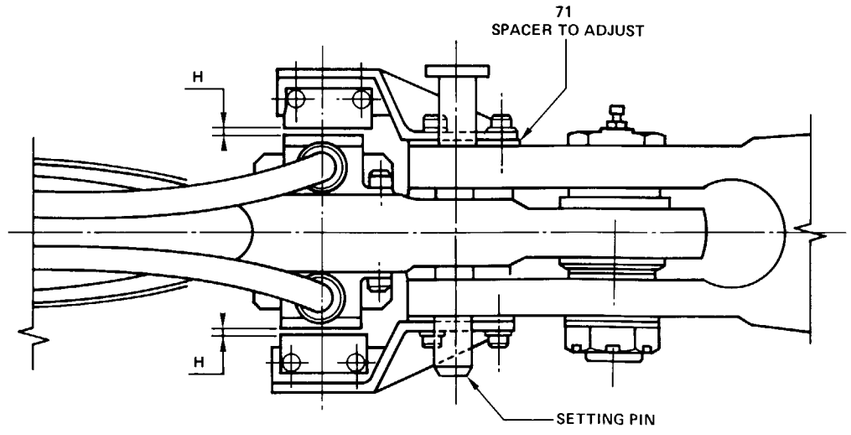


BM5 32 00 00 4 AGM0 01

Main Gear - Brace Strut Proximity Detectors
Figure 404

NOTE : Make certain that sensors and targets are not scratched and that they bear no signs of impact damage.

(a)Disconnect proximity detector leads and install protective caps on plugs (60) and receptacles.
(b)Remove cotter pin, remove nut (61) and washer (62).
(c)Remove screw (64) and mounting (65).
(d)Free sensor cable from mounting (63).
(e)Install attaching parts previously removed.
(f)Remove targets (67)
- remove screws (70), washers (69), supports (68) and shims (71)
- cut lockwire, remove nuts (66), washers (75), bolts (72), targets (67) and shims (74).

NOTE : Note position of shims (71) and (74). Old shims (71) and (74) must be reinstalled in old position.

(g)Remove proximity detectors
- remove screws (73)
- remove proximity detectors

(5)Preparation of replacement components
(a)Depreserve replacement proximity detectors.
(b)Clean all components for reinstallation as well as detector mountings with Material No. 11-002 and dry with filtered compressed air.

E. Installation
(1)Installation of nose gear torque link proximity detectors.
(Ref. Fig. 401)
(Ref. Fig. 405)

R **ON A/C 001-100, 105-200,

R Post SB 32-2108 For A/C 001-100,105-200,

(Ref. Fig. 406)

**ON A/C ALL

(Ref. Fig. 407)

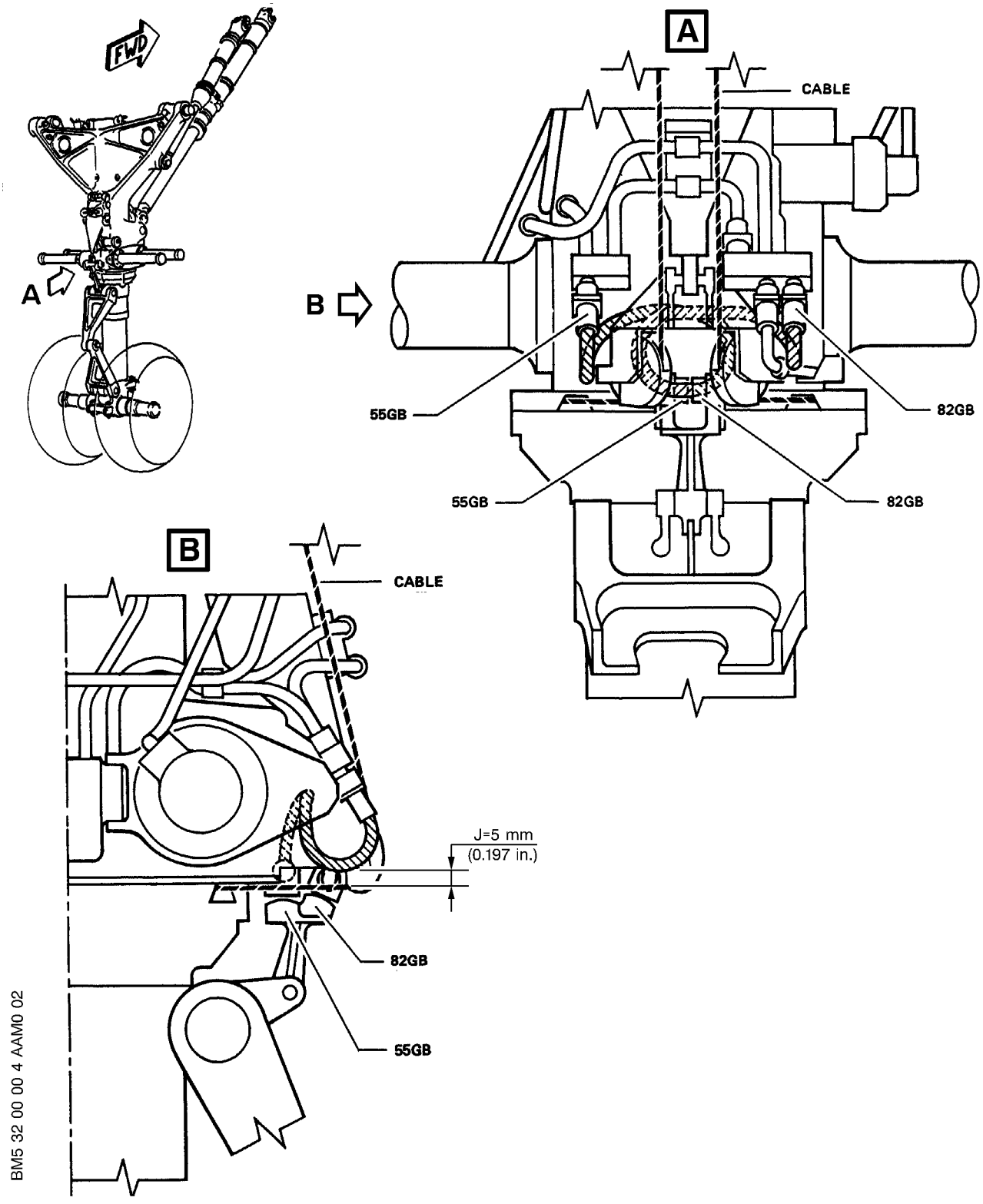
R **ON A/C 001-100, 105-200,

R Post SB 32-2108 For A/C 001-100,105-200,

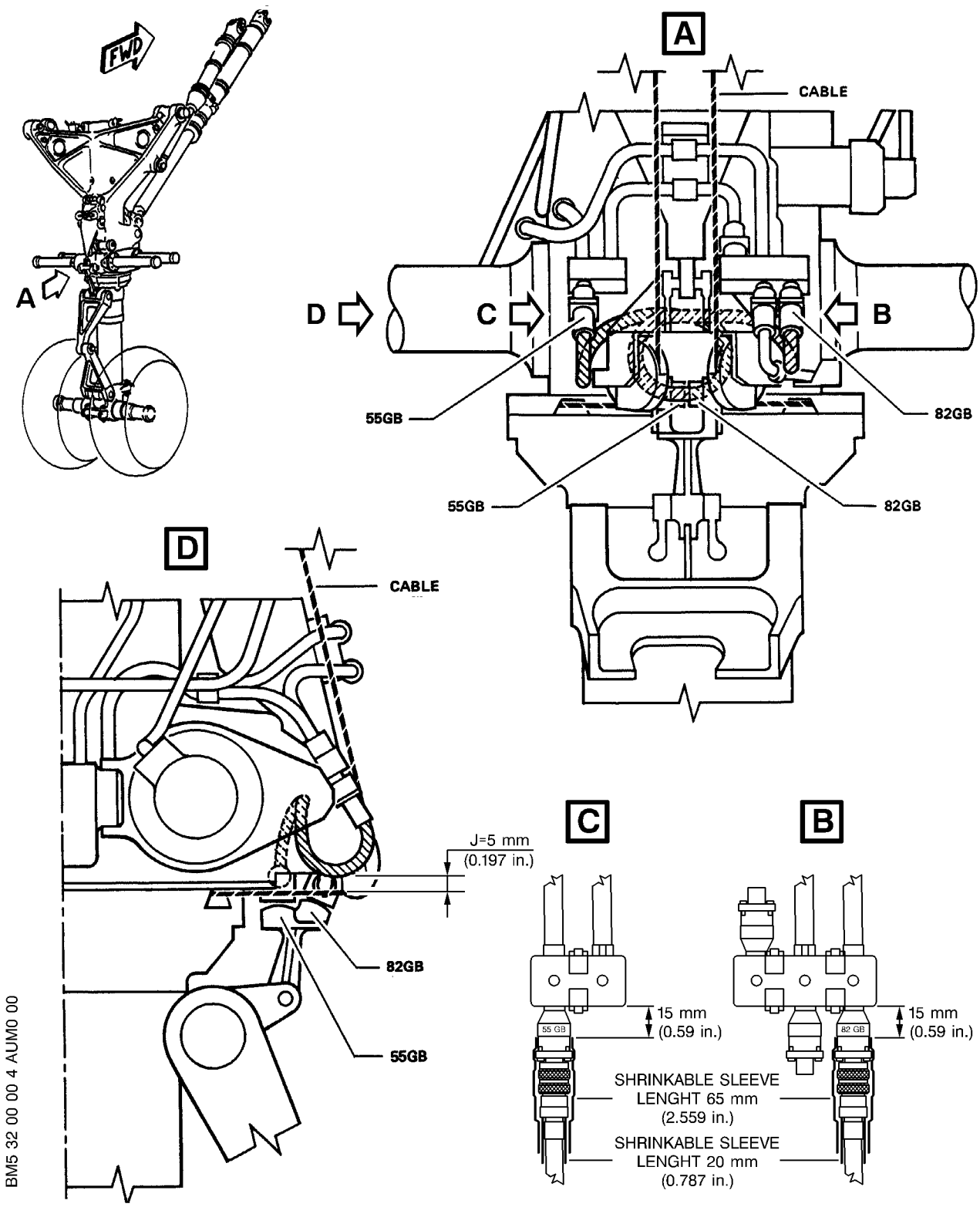
NOTE : Install new heat-shrinkable sleeves on connectors of proximity detectors 55GB and 82GB.

**ON A/C ALL

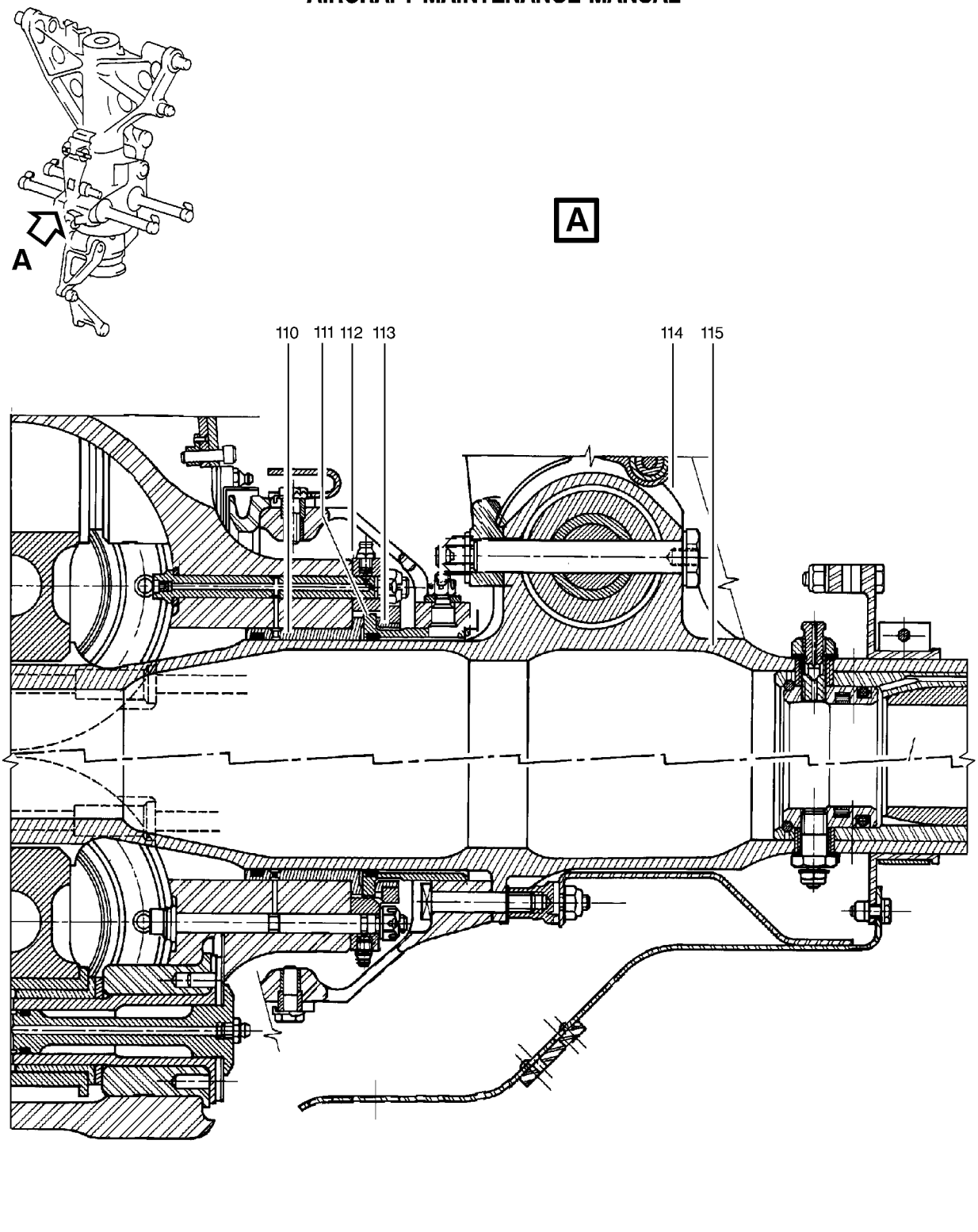
(a)Remove protective caps from plugs and receptacles.
(b)Install aft detector



Installation of Bundles
Figure 405



Installation of Bundles
Figure 406



BM5 32 00 00 4 CAM0 01

Bushed Stop
Figure 407

- position shim (4) and sensor (6),
- install screws (5) and safety with lockwire,
- position target (10),
- install bolts (11), washers (9) and nuts (8),
- connect connector 82GB, routing bundle with care and check that bundle is more than 5 mm (0.1968 in.) away from the steering control cable (Ref. Fig. 405) tolerance J.

(c)Install forward detector

- position shim (14) and sensor (13),
- install screws (12) and safety with lockwire,
- position target (3),
- install bolts (7), washers (2) and nuts (1),
- connect connector 55GB, routing bundle with care and check that bundle is more than 5 mm (0.1968 in.) away from the steering control cable (Ref. Fig. 405) tolerance J.

NOTE : Make certain that detectors are correctly positioned according to marking made before removal.

(d)Check of S dimension. (Ref. Fig. 401, 407)

- jack up aircraft until wheels are clear of ground (Ref. 07-11-00, P. Block 001)
- extract cotter pin (25), and remove nut (26) and bush (27)
- disconnect the fork/torque link upper segment attachment
- extract cotter pin (21) and remove nut (22), washer (23) and bolt (24)
- disconnect the control rod upper attachment
- position lever supporting nose gear proximity detector to align sensor and targets
- fully push rotating tube (115) downwards against the bushed stop (112). Rotating tube (115) can be pushed downwards using a wooden shim placed on the torque link lugs (114) and hit with a mallet. Rotating tube (115) only moves a few millimeters
- check that minimum dimension S ranges between 1.6 and 3 mm (0.06 and 0.1181 in.)
- if dimension S is lower than 1.6 mm or higher than 3 mm (0.06 and 0.1181 in.)
  . slacken steering control cables (Ref. 32-51-00, P. Block 501, Para 1.D.(1)(d))
  . fully push rotating tube (115) upwards against the shock strut ring (110) to take up the stop ring wear (wear between stop (111) and ring (113)) (if necessary by applying a mechanical lood to the rotating tube). Rotating tube (115) can be pushed upwards using same shim and mallet placed underneath ; avoid hitting the grease nipple.
  . adjust thickness of shims (4) and (14) to achieve a gap of 1 mm (0.0393 in.) for dimension S
  . push tube fully downwards and measure dimension S again
  . if dimension is higher than 3 mm (0.1181 in.) replace nose gear leg (Ref. 32-21-11, P. Block 401) or as an alternative replace bushed stop (112) (Ref. 32-21-14, P. Block 401, para. 3.)
  . if dimension S is lower than 3 mm (0.1181 in.) tension steering control cables (Ref. 32-51-00, P. Block 501, Para. 1.D.(1)(d)).

- install bolt (24), washer (23) and nuts (22) safety nut (22) with cotter pin (21)
- install fork end (28) in the upper torque link
- install bush (27) and nut (26). Safety nut (26) with cotter pin (25)
- lower the aircraft onto its wheels (Ref. 07-11-00, P. Block 001)

R **ON A/C 001-100, 105-200,

R Post SB 32-2108 For A/C 001-100,105-200,

(Ref. Fig. 401)

(a)Remove protective caps from plugs and receptacles.

(b)Install aft detector

- position shim (4) and sensor (6),
- install screws (5) and safety with lockwire,
- position target (10),
- install bolts (11), washers (9) and nuts (8),
- connect connector 82GB, routing bundle with care and check that bundle is more than 5 mm (0.1968 in.) away from the steering control cable (Ref. Fig. 406) tolerance J,
- make certain that the connector is hand screwed to the sensor backshell (prior to heat shrinkable sleeve installation),
- install the heat shrinkable sleeve on the connector 82GB, (Ref. Fig. 406)
- apply heat at a temperature of 135 deg. C (275.00 deg. F) minimum at the heat shrinkable sleeve until the heat shrinkable sleeve adjusts to the shape of the parts. Move the heat gun to apply the heat equally over the full surface of the heat shrinkable sleeve.

(c)Install forward detector

- position shim (14) and sensor (13),
- install screws (12) and safety with lockwire,
- position target (3),
- install bolts (7), washers (2) and nuts (1),
- connect connector 55GB, routing bundle with care and check that bundle is more than 5 mm (0.1968 in.) away from the steering control cable (Ref. Fig. 405) tolerance J,

NOTE : Make certain that detectors are correctly positioned according to marking made before removal.

- make certain that the connector is hand screwed to the sensor backshell (prior to heat shrinkable sleeve installation),
- install the heat shrinkable sleeve on the connector 55GB,
- apply heat at a temperature of 135 deg. C (275.00 deg. F) minimum at the heat shrinkable sleeve until the heat shrinkable sleeve adjusts to the shape of the parts. Move the heat gun to apply the heat equally over the full surface of the heat shrinkable sleeve.

(d)Check of S dimension. (Ref. Fig. 401, 407)

- jack up aircraft until wheels are clear of ground (Ref. 07-11-00, P. Block 001)
- extract cotter pin (25), and remove nut (26) and bush (27)

- disconnect the fork/torque link upper segment attachment
- extract cotter pin (21) and remove nut (22), washer (23) and bolt (24)
- disconnect the control rod upper attachment
- position lever supporting nose gear proximity detector to align sensor and targets
- fully push rotating tube (115) downwards against the bushed stop (112). Rotating tube (115) can be pushed downwards using a wooden shim placed on the torque link lugs (114) and hit with a mallet. Rotating tube (115) only moves a few millimeters
- check that minimum dimension S ranges between 1.6 and 3 mm (0.06 and 0.1181 in.)
- if dimension S is lower than 1.6 mm or higher than 3 mm (0.06 and 0.1181 in.)
  . slacken steering control cables (Ref. 32-51-00, P. Block 501, Para 1.D.(1)(d))
  . fully push rotating tube (115) upwards against the shock strut ring (110) to take up the stop ring wear (wear between stop (111) and ring (113)) (if necessary by applying a mechanical lood to the rotating tube). Rotating tube (115) can be pushed upwards using same shim and mallet placed underneath ; avoid hitting the grease nipple.
  . adjust thickness of shims (4) and (14) to achieve a gap of 1 mm (0.0393 in.) for dimension S
  . push tube fully downwards and measure dimension S again
  . if dimension is higher than 3 mm (0.1181 in.) replace nose gear leg (Ref. 32-21-11, P. Block 401) or as an alternative replace bushed stop (112) (Ref. 32-21-14, P. Block 401, para. 3.)
  . if dimension S is lower than 3 mm (0.1181 in.) tension steering control cables (Ref. 32-51-00, P. Block 501, Para. 1.D.(1)(d)).
- install bolt (24), washer (23) and nuts (22)
  safety nut (22) with cotter pin (21)
- install fork end (28) in the upper torque link
- install bush (27) and nut (26). Safety nut (26) with cotter pin (25)
- lower the aircraft onto its wheels (Ref. 07-11-00, P. Block 001)

**ON A/C ALL

(2)Installation of main gear bogie beam proximity detectors.

(Ref. Fig. 402)

(a)Install targets and target mounting brackets
- position targets (46)
- install bolts (45), washers (43) and nuts (44)
- install mounting bracket assembly (42) and bolts (41)
- TORQUE bolts (43) to 1.8 +0.3 +0 m.daN (13.2 +2.21 +0 lbf.ft.) and wirelock.

(b)Install sensors and sensor mounting bracket

NOTE : Care must be exercised when installing sensor mounting bracket, in order to avoid damage.

- Install sensors (31) without shims on mounting bracket (36).
- Install bolts (32), washers (34) and nuts (35). Install mounting bracket (36).
- Screw in bolt (38) until it extends into mounting bracket by 5 mm (0.196 in.) approximately.
- Check dimension C between sensor (31) and target (46).

NOTE : Dimension C is 2.6 ± 0.1 mm and can be checked as follows :

- Jack up the aircraft, wheels clear of ground (Ref. 07-11-00, P. Block 1).
- Make certain that sensors and targets are aligned.
- Measure dimension X from bottom side of bolt (38) and bushing (39).
- Push bolt (38) upwards so that sensors (31) contact targets (46). Measure dimension Y.
- Dimension X - Y = dimension C = 2.6 ± 0.1 mm (0.0984 to 0.1063 in.)

NOTE : After replacement of support (36) or bolt (38) a rework of shim (33) may be necessary to recover correct dimension C according to the following procedure with shim (33) removed.

- Determine thickness of shim (33) using the following formula : Shim thickness = (dimension X-Y) - 2.6 ± 0.1 mm (0.0984 to 0.1063 in.).
  Machine down shim (33) to obtain required thickness.
  Surface roughness (CLA) = 1.6 microns (63 microinches).
  Tolerance on parallelism : 0.05 %.
  Protect shims (33) by applying chromic acid anodizing procedure.
- remove bolt (38) and sensor-mounting bracket (36) : unscrew bolt (38) and remove sensor-mounting bracket assembly.
- remove sensors from mounting bracket : remove nuts (35), washers (34) and bolts (32). Retain sensors (31).
- install and bond shims (33) on mounting bracket assembly with Material No. 08-001.
- install sensors on mounting bracket assembly : install sensors (31), bolts (32), washers (34) and nuts (35). TORQUE nuts to between 0.3 and 0.4 m.daN (26.50 and 35.50 lbf. in.). Install cable clamps if previously removed.
- Install bolt (38) and sensor-mounting bracket assembly
- position mounting bracket (36) making certain that sensors and targets are aligned
- After correct achievement of C dimension, complete installation of bolt (38) and TORQUE bolt (38) to between 1.2 and 1.45 m.daN (8.85 and 10.70 lbf.ft.) making certain that lock pin holes in mounting bracket (36) and bolt are aligned
- install lock pin (40) and nut (37). TORQUE nut (37) to between 0.3 and 0.4 m.daN (26.5 and 35.5 lbf.in.) and wirelock lock pin (39) head to bolt (38) head.
- Lower the aircraft on its wheels (Ref. 07-11-00, P. Block 1).

(c) Remove protective caps from plugs and receptacles and connect proximity detectors leads.

(3) Installation of main gear torque link proximity detectors. (Ref. Fig. 403)

(Ref. Fig. 404)

R **ON A/C 001-100, 105-200,

R Post SB 32-2108 For A/C 001-100,105-200,

NOTE : Install new heat-shrinkable sleeves on connectors of proximity detectors 62GB (63GB) and 64GB (65GB).

**ON A/C ALL

(a)Install sensors (50)
- position shim (56) and sensors and install screws (57).
  TORQUE screws (57) to between 0.3 and 0.4 m.daN (26.50 and 35.50 lbf. in.)

(b)Install targets (52)
- position shims (53) and targets (52)
- install bolts (51), fitted with their washers (55)
  TORQUE nuts (54) to between 0.3 and 0.4 m.daN (26.50 and 35.50 lbf. in.)

NOTE : Make certain that detectors and targets are correctly positioned according to marking made before removal.
Check that total thickness of sensor and target assemblies on their respective mountings conforms with previously noted dimensions.
If dimensions do not conform refer to paragraphs (3)(c) and (3)(d).
If dimensions conform refer to paragraph (3)(e).

NOTE : If sensors and targets bore signs of impact damage or scratches prior to removal check as follows.

(c)Check of clearance X
- Jack up the aircraft, wheels clear of ground (Ref. 07-11-00, P. Block 1).
- Make certain that sensors and targets are aligned.
- Check that clearance X between sensor and target is 2.5 ± 0.1 mm (0.0984 ± 0.0039 in.). If necessary remove sensors and shims.
  Adjust thickness of shims (56) to achieve correct clearance.
  Install shims (56), sensors and screws (57). Safety screws.

(d)Check of clearance Z
- Check that clearance Z between the sides of the target and the sensor is 6 ± 0.1 mm (0.24 ± 0.0039 in.).
  If necessary remove targets (52) and shims (53). Adjust thickness of shims (53) to achieve correct clearance.
  Install shims (53), targets (52) and nuts (54). Safety nuts (54).
- Lower the aircraft on its wheels (Ref. 07-11-00, P. Block 1).

(e)Remove protective caps from plugs and receptacles and connect proximity detector leads.

(4)Installation of main gear brace strut proximity detectors.
(Ref. Fig. 404)

(a)Install sensors on mounting
- smear screws (73) with Material No. 05-047
- install screws (73)
  TORQUE screws (73) to between 0.1 and 0.15 m.daN (8.85 and 13.27 lbf.in.).

(b)Install targets
- Position targets (67) on mounting and install shims (74), washers (75) and bolts (72).
- Install and TORQUE nuts (66) to between 0.3 and 0.4 m.daN (26.50 and 35.50 lbf. in.)
- Position shims (71), mountings (68) and washers (69)
- Install screws (70). TORQUE screws (70) to between 0.3 and 0.4 m.daN (26.50 and 35.50 lbf. in.).

NOTE : Make certain that detectors and targets are correctly positioned according to marking made before removal.
Check that total thickness of sensor and target assemblies on their respective mountings conforms with previously noted dimensions.
If dimensions do not conform refer to paragraph (4)(c) and (4)(d).
If dimensions conform refer to paragraph (4)(e).

(c)Check of clearance H
- Check that clearance H between sensor and target is 1.5 ± 0.5 mm (0.059 ± 0.019 in.).
  If necessary remove supports and shims. When H > 2 mm (0.078 in.).
  Adjust thickness of shim (71) to achieve a clearance H of 1.5 ± 0.1 mm (0.059 in. ± 0.0039 in.).
  Install shims (71), supports and screws (70). Safety screws (70).

(d)Check of clearance J
- Check that clearance J between sensor and target lengthwise centerline is 4.5 ± 0.1 mm (0.177 ± 0.0039 in.).
  If necessary remove targets (67) and shims (74). Adjust thickness of shims (74) to achieve correct clearance.
  Install shims (74) targets (67) and nut (66). Wirelock nuts (66).

(e)Remove attaching parts.
(f)Install mounting (63).
(g)Install sensor cable.
(h)Install mounting (65), screw (64) and washer (62).
(j)Install nut (61) and TORQUE nut to between 0.65 and 0.80 m.daN (57.50 lbf. in. and 70.8 lbf. in) and wirelock.
(k)Remove protective caps from plugs (60) and receptacles and connect proximity detector leads.

R **ON A/C 001-100, 105-200,

R Post SB 32-2108 For A/C 001-100,105-200,

(a)Install sensors (50)
- position shim (56) and sensors and install screws (57).
  TORQUE screws (57) to between 0.3 and 0.4 m.daN (26.50 and 35.50

lbf. in.)

(b)Install targets (52)
- position shims (53) and targets (52)
- install bolts (51), fitted with their washers (55)
  TORQUE nuts (54) to between 0.3 and 0.4 m.daN (26.50 and 35.50 lbf. in.)

NOTE : Make certain that detectors and targets are correctly positioned according to marking made before removal.
Check that total thickness of sensor and target assemblies on their respective mountings conforms with previously noted dimensions.
If dimensions do not conform refer to paragraphs (3)(c) and (3)(d).
If dimensions conform refer to paragraph (3)(e).

NOTE : If sensors and targets bore signs of impact damage or scratches prior to removal check as follows.

(c)Check of clearance X
- Jack up the aircraft, wheels clear of ground (Ref. 07-11-00, P. Block 1).
- Make certain that sensors and targets are aligned.
- Check that clearance X between sensor and target is 2.5 ± 0.1 mm (0.0984 ± 0.0039 in.). If necessary remove sensors and shims.
  Adjust thickness of shims (56) to achieve correct clearance.
  Install shims (56), sensors and screws (57). Safety screws.

(d)Check of clearance Z
- Check that clearance Z between the sides of the target and the sensor is 6 ± 0.1 mm (0.24 ± 0.0039 in.).
  If necessary remove targets (52) and shims (53). Adjust thickness of shims (53) to achieve correct clearance.
  Install shims (53), targets (52) and nuts (54). Safety nuts (54).
- Lower the aircraft on its wheels (Ref. 07-11-00, P. Block 1).

(e)Remove protective caps from plugs and receptacles and connect proximity detector leads.

(f)Install the heat shrinkable sleeve on connectors of proximity detectors 62GB (63GB) and 64GB (65GB) (Ref. Fig. 403).

(g)Apply heat at a temperature of 135 deg. C (275.00 deg. F) minimum at the head shrinkable sleeve until the heat shrinkable sleeve adjusts to the shape of the parts. Move the heat gun to apply the heat equally over the full surface of the heat shrinkable sleeve.

(h)Apply sealant Material No. 09-008E around the sleeve.

(4)Installation of main gear brace strut proximity detectors. (Ref. Fig. 404)

(a)Install sensors on mounting
- smear screws (73) with Material No. 05-047
- install screws (73)
  TORQUE screws (73) to between 0.1 and 0.15 m.daN (8.85 and 13.27 lbf.in.).

(b)Install targets
- Position targets (67) on mounting and install shims (74), washers (75) and bolts (72).

- Install and TORQUE nuts (66) to between 0.3 and 0.4 m.daN (26.50 and 35.50 lbf. in.)
- Position shims (71), mountings (68) and washers (69)
- Install screws (70). TORQUE screws (70) to between 0.3 and 0.4 m.daN (26.50 and 35.50 lbf. in.).

NOTE : Make certain that detectors and targets are correctly positioned according to marking made before removal.
Check that total thickness of sensor and target assemblies on their respective mountings conforms with previously noted dimensions.
If dimensions do not conform refer to paragraph (4)(c) and (4)(d).
If dimensions conform refer to paragraph (4)(e).

(c)Check of clearance H
- Check that clearance H between sensor and target is 1.5 ± 0.5 mm (0.059 ± 0.019 in.).
  If necessary remove supports and shims. When H > 2 mm (0.078 in.).
  Adjust thickness of shim (71) to achieve a clearance H of 1.5 ± 0.1 mm (0.059 in. ± 0.0039 in.).
  Install shims (71), supports and screws (70). Safety screws (70).

(d)Check of clearance J
- Check that clearance J between sensor and target lengthwise centerline is 4.5 ± 0.1 mm (0.177 ± 0.0039 in.).
  If necessary remove targets (67) and shims (74). Adjust thickness of shims (74) to achieve correct clearance.
  Install shims (74) targets (67) and nut (66). Wirelock nuts (66).

(e)Remove attaching parts.
(f)Install mounting (63).
(g)Install sensor cable.
(h)Install mounting (65), screw (64) and washer (62).
(j)Install nut (61) and TORQUE nut to between 0.65 and 0.80 m.daN (57.50 lbf. in. and 70.8 lbf. in) and wirelock.
(k)Remove protective caps from plugs (60) and receptacles and connect proximity detector leads.

**ON A/C ALL

(5)Test
(a)Using proximity detector processing unit 54GB, carry out a continuity test of new proximity detectors (Ref. 32-00-00, P. Block 501).
R (b)Carry out a Normal extension and retraction Functional test
R (Ref. 32-31-00, P. Block 501) only after :
R - Removal/installation of nose gear torque link proximity detectors
R and/or
R - Removal/installation of main gear bogie beam proximity detectors
R and/or
R - Removal/installation of main gear torque link proximity detectors.

(6)Close-Up
(a)Make certain that working area is clean and clear of tools and miscellaneous items of equipment.
(b)Coat zones identified with Material No. 09-001

- Zone F Material No. 09-001

(c)Remove safety clips and tags and close circuit breakers :

1 For removal/installation of proximity detectors on nose gear torque links, main gear bogie beams and main gear torque links :

- circuit breakers 1GB, 2GB and 119GB.

WARNING : AFTER CLOSING CIRCUIT BREAKER 119GB LOCATED ON PANEL 133VU, PERFORM APPROPRIATE PROCEDURE (REF. 32-00-00, P. BLOCK 501).

2 For removal/installation of proximity detectors on main gear brace struts :

- circuit breakers 3GB and 83GB.

(d)Remove warning notices.

(e)Remove access platform.

2. Nose Gear Downlock Indicator and Nose and Main Gear Microswitches

WARNING : CHECK THAT THE LANDING GEAR GROUND SAFETIES INCLUDING WHEEL CHOCKS ARE IN POSITION.
BEFORE APPLYING OR RELIEVING HYDRAULIC SYSTEM PRESSURE; MAKE CERTAIN THAT THE TRAVEL RANGES OF THE CONTROL SURFACES ARE CLEAR.
BEFORE PRESSURIZING HYDRAULIC SYSTEMS, CHECK THAT ALL CONTROLS ARE SET TO CORRESPOND WITH THE ACTUAL POSITION OF THE SERVICES THEY OPERATE.
BEFORE POWER IS SUPPLIED TO THE AIRCRAFT, MAKE CERTAIN THAT ELECTRICAL CIRCUITS UPON WHICH WORK IS IN PROGRESS ARE ISOLATED.
BEFORE PRESSURIZING HYDRAULIC SYSTEMS, MAKE CERTAIN THAT HYDRAULIC SYSTEM UNDER MAINTENANCE HAS BEEN ISOLATED.

A. Reasons for the Job

(1)Removal of nose gear telescopic drag strut downlock indicator.
(2)Removal of nose gear telescopic drag strut microswitch.
(3)Removal of nose gear uplock assembly microswitch.
(4)Removal of nose gear door uplock assembly microswitch.
(5)Removal of main gear uplock assembly microswitch.
(6)Removal of main gear door uplock assembly microswitch.

B. Equipment and Materials

	ITEM	DESIGNATION
	(1)	Access Platform 2.60 m (8 ft. 7 in.)
	(2)	Circuit Breaker Safety Clips
	(3)	Warning Notices
	(4)	Protective Caps
	(5)	Safety Barriers
R	(6)Material No. 05-047	Special Materials (Ref. 20-31-00)
R	(7)Material No. 09-001	Sealants (Ref. 20-31-00)
R	(8)Material No. 09-004	Sealants (Ref. 20-31-00)
R	(9)Material No. 09-580	Sealant (Ref. 20-31-00)
R	10)Material No. 11-002	Cleaning Agents (Ref. 20-31-00)

**ON A/C 001-100, 105-200,

Post SB 32-2108 For A/C 001-100,105-200,

R 11)Material No. 09-008E Sealants (Ref. 20-31-00)

**ON A/C ALL

Referenced Procedures
- 24-41-00, P. Block 301 AC External Power Control
- 32-00-00, P. Block 301 General - Servicing
- 32-12-11, P. Block 301 Main Gear Main Door - (Ground Door(s) Opening)
- 32-22-11, P. Block 301 Nose Gear Main Door - (Ground Door(s) Opening)
- 32-31-00, P. Block 501 Normal Extension and Retraction
- 32-61-00, P. Block 501 Indicating and Warning

C. Procedure
(1)Job set-up
(a)On panel 4VU
- make certain that landing gear control lever is in DOWN position and prohibit its operation by displaying a warning notice.

(b)Between First Officer's and Third Occupant's seats
- make certain that landing gear Free Fall extension control handle is in Normal position.

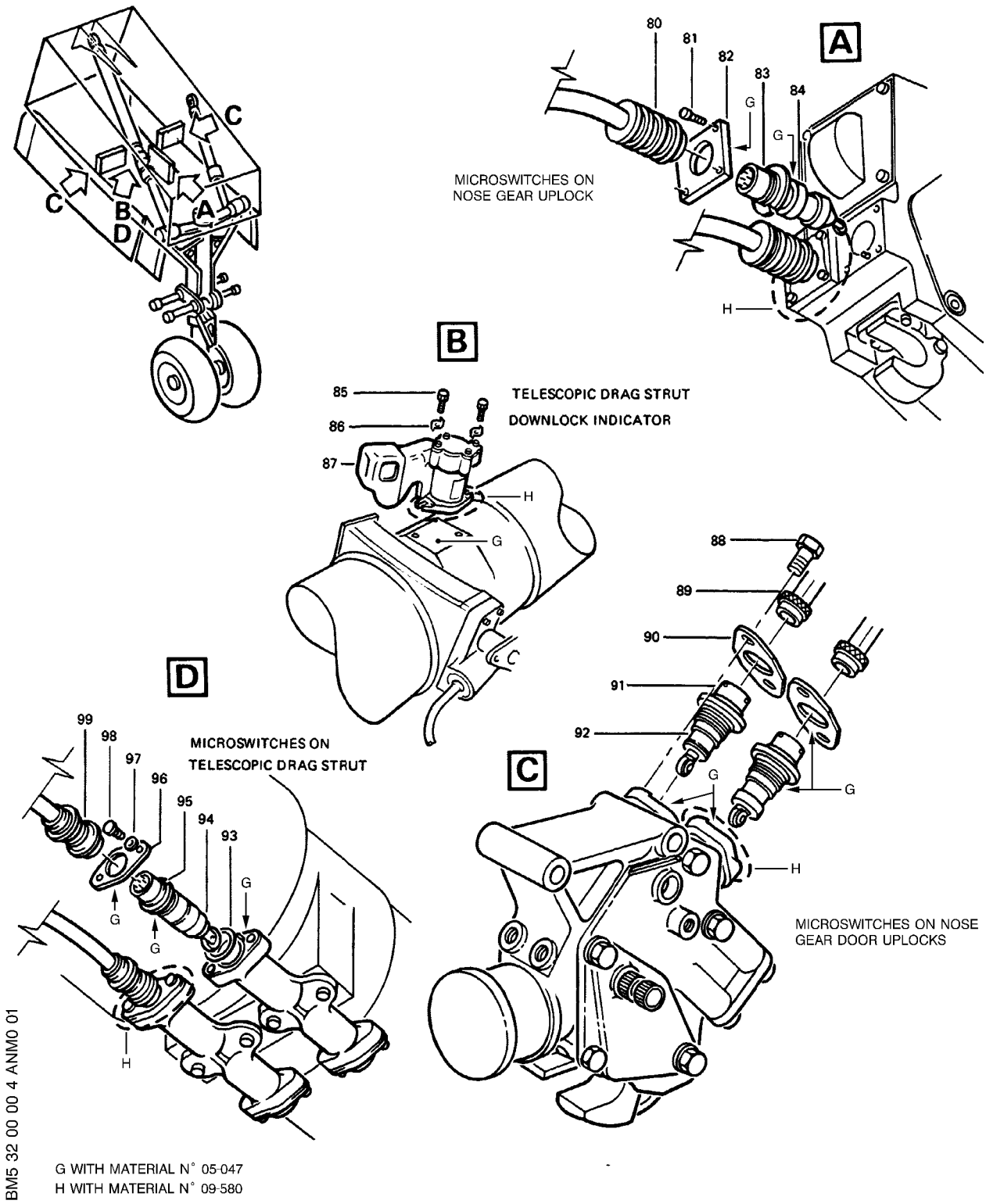
(c)Open, safety and tag the following circuit breakers :

PANEL	SERVICE	IDENT.	LOCATION
132VU	LIGHTING/INT LT/ANN LT/DIM	197LT	324/L84
132VU	LIGHTING/INT LT/ANN LT/DIM	198LT	423/L83
133VU	HYDRAULIC/L/G PROX DET/& RELAYS SYS1/ GEAR DN &/CTL PNL/POS IND	3GB	332/U53
133VU	HYDRAULIC/L/G PROX DET/& RELAYS SYS2/ GEAR DOWN &/OVHD PNL/POS IND	83GB	331/V51

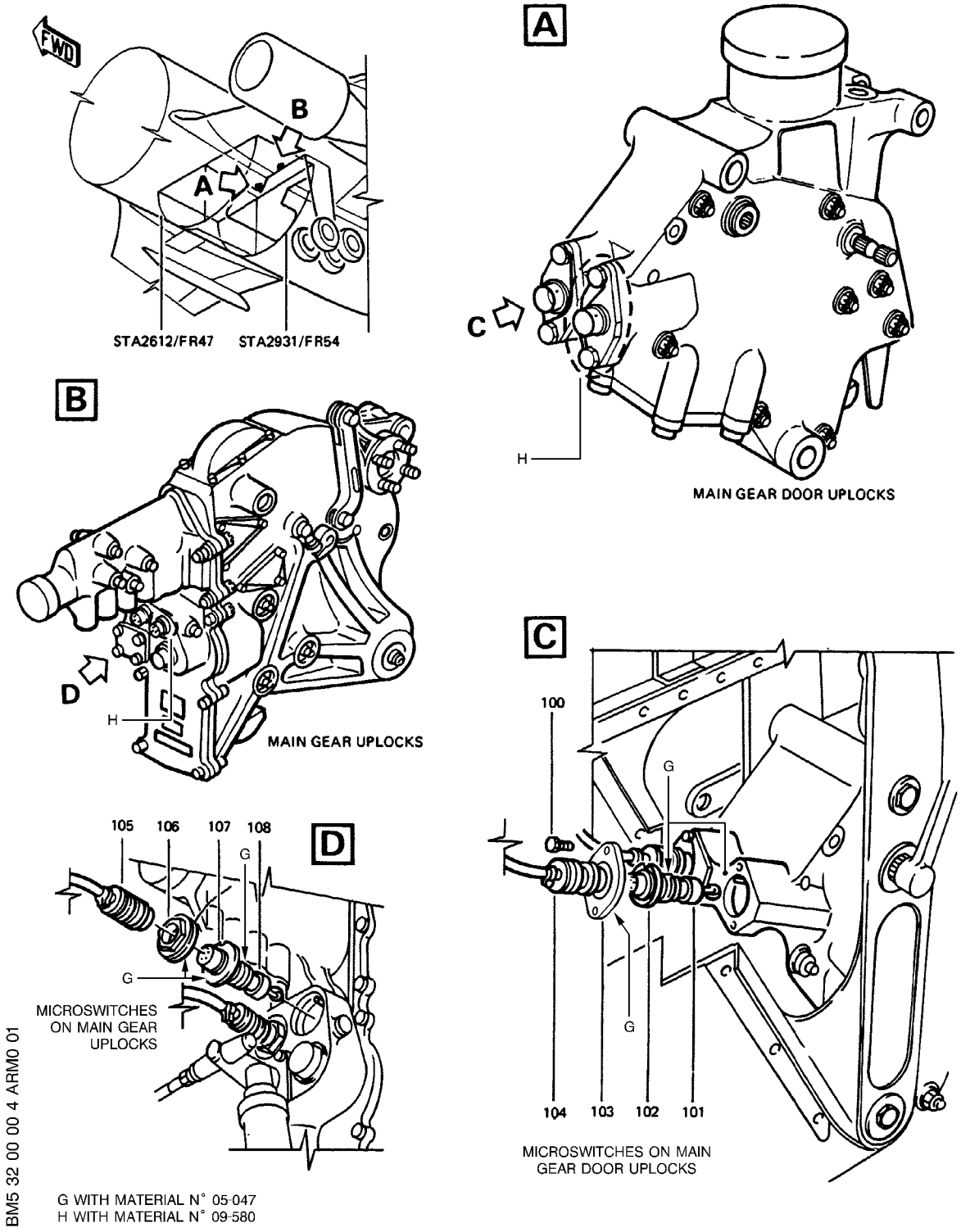
(d)Position access platform.
(e)Position safety barriers prohibiting access to gear door travel ranges.
WARNING : MAKE CERTAIN THAT THE DOOR TRAVEL RANGES ARE CLEAR.
(f)Open doors
- Open nose gear doors (Ref. 32-22-11, P. Block 301) to gain access to nose gear and door uplock assembly microswitches
- Open main gear doors (Ref. 32-12-11, P. Block 301) to gain access to main gear and door uplock assembly microswitches.

WARNING : WHEN DOORS ARE OPEN, MAKE CERTAIN THAT SAFETY COLLARS ARE POSITIONED ON DOOR ACTUATING CYLINDERS.

(2)Removal
(Ref. Fig. 408, 409)
(a)Removal of downlock indicator on nose gear telescopic drag strut
1 Cut lockwire and remove screws (85) and tabwashers (86).



Nose Gear - Downlock Indicator and Microswitches
Figure 408



Main Gear - Microswitches
Figure 409

2 Remove downlock indicator (87).

(b)Removal of microswitch on nose gear telescopic drag strut

**ON A/C 001-100, 105-200,

Post SB 32-2108 For A/C 001-100,105-200,

NOTE : Remove sealant from connection area of microswitches 40GB and 79GB. Remove and discard heat-shrinkable sleeves.

**ON A/C ALL

1 Cut lockwire, disconnect microswitch lead and install protective caps on plug (99) and receptacle (95).
2 Cut lockwire, remove screws (98) and washers (97).
3 Remove flange (96) and microswitch (94).

(c)Removal of microswitch on nose gear uplock assembly

1 Cut lockwire, disconnect microswitch (84) lead and install protective caps on plug (80) and receptacle (83).
2 Cut lockwire and remove screws (81).
3 Remove flange (82) and microswitch (84).

R (d)Removal of microswitch on nose gear door uplock assembly

1 Cut lockwire, disconnect microswitch (92) lead and install protective caps on plug (91) and receptacle (89).
2 Cut lockwire and remove screws (88).
3 Remove flange (90) and microswitch (92).

(e)Removal of microswitch on main gear uplock assembly

1 Cut lockwire, disconnect microswitch lead and install protective caps on plug (105) and receptacle (107).
2 Cut lockwire and remove nut (106).
3 Remove microswitch (108).

(f)Removal of microswitch on main gear door uplock assembly

1 Cut lockwire, disconnect microswitch lead and install protective caps on plug (104) and receptacle (102).
2 Cut lockwire, remove screws (100) and flange (103).
3 Remove microswitch (101).

(3)Preparation of replacement component

(a)Depreserve replacement components.
(b)Clean all components for reinstallation as well as microswitch mountings with Material No. 11-002 and dry with filtered compressed air.

(4)Installation

(Ref. Fig. 408, 409)

(a)Installation of downlock indicator on nose gear telescopic drag strut.

1 Coat zone G with Material No. 05-047.
2 Position downlock indicator (87) equipped with peel shim affixed to base. Adjust peel shim to center flag in indicator (87) window. Tolerance : 0 to 1 mm (0 to 0.039 in.) with telescopic drag strut downlocked.
3 Install tab washers (86) and screws (85). TORQUE screws (85) to between 0.15 and 0.20 m.daN (13.3 and 17.7 lbf. in.).

4 Coat around zone H with Material No. 09-580.
5 Carry out a Nose Gear Functional Test - Main Gear on ground (Ref. 32-31-00, P. Block 501).
R 6 Shine electric torch through downlock indicator window to illuminate
R mechanical indicator unit :
R - Make sure that you cannot see green indicator during extension and
R retraction of landing gear.
R - Make sure that you can see green indicator when landing gear is
R downlocked.

(b)Installation of microswitch on nose gear telescopic drag strut.

**ON A/C 001-100, 105-200,

Post SB 32-2108 For A/C 001-100,105-200,

NOTE : Install new heat-shrinkable sleeves on connections of microswitches 40GB and 79GB and apply sealant (Material No. 09-008E).

**ON A/C ALL

1 Make certain that seal (93) is in correct condition and correctly positioned.
2 Coat zone G with Material No. 05-047.
3 Position microswitch (94) by means of dowel pin.
4 Install flange (96), washers (97) and screws (98).
5 TORQUE screws (98) to between 0.15 and 0.20 m.daN (13.3 and 17.7 lbf. in.) and wirelock.
6 Coat around zone H with Material No. 09-580.
7 Remove protective caps from plug (99) and receptacle (95), connect microswitch lead and wirelock.
8 Energize the aircraft electrical network (Ref. 24-41-00, P. Block 301). Make certain that electronics rack ventilation system is in operation.
- check on landing gear and door indicating units 11GB and 78GB, on panels 4VU and 76VU, that green nose left and right arrows only are illuminated.

(c)Installation of microswitch on nose gear uplock assembly.
1 Coat zone G with Material No. 05-047.
2 Position microswitch (84) by means of dowel pin.
3 Install flange (82).
4 Install screws (81).
TORQUE screws (81) to between 0.15 and 0.20 m.daN (13.3 and 17.7 lbf. in.) and wirelock.
5 Coat around zone H with Material No. 09-580.
6 Remove protective caps from plug (80) and receptacle (83), connect microswitch lead and wirelock.
NOTE : Due to dual installation of all gear indication switches (SYS1 and SYS2), it is not necessary to perform an operational test of landing gear retraction extension indicating if only one

microswitch has been replaced.
If both microswitches have been replaced, perform warning test with SYS1 then SYS2 selected (Ref. 32-61-00, P. Block 501).

(d)Installation of microswitch on nose gear door uplock assembly.
1 Coat zone G with Material No. 05-047.
2 Position microswitch (92) by means of dowel pin.
3 Install flange (90).
4 Install screws (88).
TORQUE screws (88) to between 0.15 and 0.20 m.daN (13.3 and 17.7 lbf. in.) and wirelock.
5 Coat around zone H with Material No. 09-580.
6 Remove protective caps from plug (91) and receptacle (89), connect microswitch lead and wirelock.
7 Carry out a ground door opening and closing functional test (Ref. 32-31-00, P. Block 501).

(e)Installation of microswitch on main gear uplock assembly.
1 Coat zone G with Material No. 05-047.
2 Position microswitch (108) by means of dowel pin.
3 Install nut (106).
TORQUE nut (106) to between 0.3 and 0.4 m.daN (26.50 and 35.50 lbf. in.) and wirelock.
4 Coat around zone H with Material No. 09-580.
5 Remove protective caps from plug (105) and receptacle (107), connect microswitch lead and wirelock.
NOTE : Due to dual installation of all gear indication switches (SYS1 and SYS2), it is not necessary to perform an operational test of landing gear retraction extension indicating if only one microswitch has been replaced.
If both microswitches have been replaced, perform warning test with SYS1 then SYS2 selected (Ref. 32-61-00, P. Block 501).

(f)Installation of microswitch on main gear door uplock assembly.
1 Coat zone G with Material No. 05-047.
2 Position microswitch (101) by means of dowel pin.
3 Install flange (103) and screws (100).
TORQUE screws (100) to between 0.3 and 0.4 m.daN (26.50 and 35.50 lbf. in.) and wirelock.
4 Coat around zone H with Material No. 09-580.
5 Remove protective caps from plug (104) and receptacle (102), connect microswitch lead and wirelock.
6 Carry out a ground door opening and closing functional test (Ref. 32-31-00, P. Block 501).

(5)Close-Up
(a)Make certain that working area is clean and clear of tools and miscellaneous items of equipment.
(b)Remove safety clips and tags and close circuits breakers 3GB, 83GB, 197LT and 198LT.
WARNING : MAKE CERTAIN THAT DOOR TRAVEL RANGES ARE CLEAR.
(c)Close gear doors (Ref. 32-12-11, P. Block 301 and 32-22-11, P. Block 301).
(d)Remove warning notices.
(e)Remove access platforms and safety barriers.

(f)Remove all ground handling and maintenance equipment, standard and special tools, together with ground power and replenishing equipment, all access equipment and miscellaneous items.

WARNING : SETTING TO FLIGHT CONFIGURATION CAN BE DANGEROUS FOR GROUND PERSONNEL AND FOR THE AIRCRAFT.

WARNING : YOU MUST CLOSE THE CIRCUIT BREAKERS OPENED FOR AIRCRAFT FLIGHT CONFIGURATION WHEN THE MAINTENANCE WORK IS COMPLETED. DAMAGE TO THE AIRCRAFT CAN OCCUR IF THEY STAY OPEN.

1. Measures To Be Taken Prior To Opening Circuit Breaker 119GB

A. Measures to be taken prior to setting the aircraft to flight configuration. Prior to setting the aircraft to flight configuration, take the following safety measures :
- On WINDOW HEAT section of panel 433VU
  - make certain that PWR/L and R pushbutton switches are selected OFF/R.
- On PROBE HEAT section of panel 433VU
  - make certain that CAPT, STBY and F/O pushbutton switches are selected OFF.
- On ANTI ICE section of panel 426VU
  - make certain that WING/SUPPLY pushbutton switch is released (out)
- If the APU is operating or is going to be operated, man the flight compartment with qualified personnel to monitor the procedures, because the APU fire protection is no longer effective.
- Make certain that a door is open.
- Open, safety and tag the following circuit breakers :

PANEL	SERVICE	IDENT.	LOCATION
21VU	STICK SHAKER/CAPT	12FU1	109/A 9
21VU	STICK SHAKER/F/O	12FU2	109/A10
800VU	DRAIN MAST/FRONT	1DU	X01
811VU	DRAIN MAST	11DU	Y01

B. Opening of Circuit Breaker
(1)Open, safety and tag the following circuit breaker :

PANEL	SERVICE	IDENT.	LOCATION
133VU	HYDRAULIC/L/G PROX DET/& RELAYS SYS1/ FLT/GND	119GB	332/U52

R C. Do the Applicable Procedure

R D. Closing of Circuit Breaker
(1)Remove safety clip and tag and close circuit breaker 119GB
(2)Remove safety clips and tags and close circuit breaker 12FU1, 12FU2, 1DU, 11DU.

2. Procedure for Connecting Landing Gear Safety Relay Control Simulator (Test Set 860135953100001)

A. Reason for the Job

(1)Connection of the test set which serves to simulate Flight - Ground configurations for specific tests described in the Maintenance Manual. Connection of the test set requires a special procedure as certain configurations can be dangerous for personnel and the aircraft.

B. Equipment and Materials

ITEM	DESIGNATION
(1)860135953100001 Amend. A or 860135953100001 Amend. B	Test Set - Landing Gear Safety Relay Control Simulator

C. Procedure

(1)Installation of safety relay control simulator test set

(a)Open, safety and tag the following circuit breakers

NOTE : Opening of the following circuit breakers can cause a change of electrical state of certain other circuits, in which GB relays are operational.

PANEL	SERVICE	IDENT.	LOCATION
133VU	HYDRAULIC/L/G PROX DET/& RELAYS SYS1/ FLT/GND	119GB	332/U52
133VU	HYDRAULIC/L/G PROX DET/& RELAYS SYS1/ GEAR DN &/CTL PNL/ POS IND	3GB	332/U53
133VU	HYDRAULIC/L/G PROX DET/& RELAYS SYS2/ GEAR DOWN &/OVHD PNL/POS IND	83GB	331/V51
133VU	HYDRAULIC/L/G PROX DET/& RELAYS SYS2/ FLT/GND	1GB	331/V52

(b)On safety relay control simulator test set

NOTE : Difference between test set amend. A and test set amend. B is in brackets

- place SIMULATION FLIGHT/GROUND CONFIGURATIONS switches in GROUND position.
- place TEST/NORMAL switches (BOGIE BEAMS FLIGHT/GROUND switches) in NORMAL Position (GROUND Position).
- place SIMULATION/LANDING GEAR DOWNLOCKED switches in DOWNLOCKED position.
- place FLIGHT/GROUND switch 3XG in GROUND position.

(c)In avionics compartment, in rack 90VU, on shelf 93VU

- remove the proximity detector processing unit 54GB from its support.

(d)Connect the landing gear safety relay control simulator test set to the processing unit support connectors 54GB-A and 54GB-B using loom 97A32602004201-1.

(e)Connect loom 97A32602004202 to connector 1206VC located on panel 104VU. Each SIMULATION switch and switch 3XG controls a number of relays.

L GEAR SWITCHES	63GB	65GB	67GB	81GB
RELAYS CONTROLLED	15GB	19GB	91GB	87GB
	17GB	71GB	145GB	93GB
	25GB	125GB		127GB
	41GB	23GB		
	45GB	85GB		
	59GB	89GB		
	13GB	159GB		
	21GB	149GB		
	95GB	143GB		
	117GB	147GB		
	163GB	161GB		

R GEAR SWITCHES	62GB	64GB	66GB	80GB
RELAYS CONTROLLED	16GB	24GB	90GB	92GB
	18GB	84GB	128GB	139GB
	20GB	102GB	176GB	156GB
	22GB	124GB		
	42GB	44GB		
	50GB	72GB		
	58GB	144GB		
	60GB	148GB		
	154GB			
	178GB			

NOSE GEAR SWITCHES	40GB	55GB	79GB	82GB
RELAYS CONTROLLED		61GB	99GB	14GB
		94GB		96GB
		98GB		101GB
		115GB		152GB
		141GB		153GB
		142GB		
		181GB		

SWITCH	3XG
RELAYS CONTROLLED	23GB
	44GB
	72GB
	85GB
	89GB

NOTE : To control relay 99GB, connect the control simulator test set to microswitch plug 79GB-A as follows :

- open the nose landing gear doors (Ref. 32-22-11, P. Block 301).
- cut lockwire and disconnect plug 79GB-A.
- connect this plug to connector 79GB on loom 97A32602004201-1.

NOTE : To connect control simulator test set to microswitch plug 40GB-A proceed as follows :

- open nose landing gear doors (Ref. 32-22-11, P. Block 301)
- cut lockwire and disconnect plug 40GB-A
- connect this plug to connector 40GB on loom 97A32602004201-1.

(f)Take safety precautions prescribed for the test set.

(g)Remove safety clips and tags and close circuit breakers 3GB, 1GB, 119GB and 83GB.

(h)The circuit breakers opened, as indicated in test set safety precautions may only be closed for test concerning their own circuit.

(2)Disconnection of safety relay control simulator test set

(a)Open, safety and tag the following circuit breakers :

PANEL	SERVICE	IDENT.	LOCATION
133VU	HYDRAULIC/L/G PROX DET/& RELAYS SYS1/ FLT/GND	119GB	332/U52
133VU	HYDRAULIC/L/G PROX DET/& RELAYS SYS1/ GEAR DN & /CTL PNL/POS IND	3GB	332/U53
133VU	HYDRAULIC/L/G PROX DET/& RELAYS SYS2/ GEAR DOWN &/OVHD PNL/POS IND	83GB	331/V51
133VU	HYDRAULIC/L/G PROX DET/& RELAYS SYS2/ FLT/GND	1GB	331/V52

(b)Disconnect loom 97A32602004201-1 from connectors 54GB-A and 54GB-B

NOTE : - If connector 79GB is used :
Disconnect the two plugs 79GB
Connect plug 79GB-A to microswitch 79GB and safety with lockwire.
- If connector 40GB is used :
Disconnect the two plugs 40GB
Connect plug 40GB-A to microswitch 40GB and safety with lockwire.

Disconnect loom 97A32602004202 from connector 1206VC and connect both parts of this connector.

(c)In avionics compartment on shelf 93VU

- install proximity detector processing unit 54GB.

(d)Remove safety clips and tags and close circuit breakers 3GB, 1GB, 119GB and 83GB.

(e)On panel 4VU and overhead panel 76VU

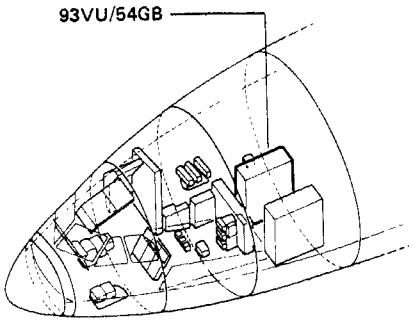
- check that indications provided by landing gear and door annunciators are correct

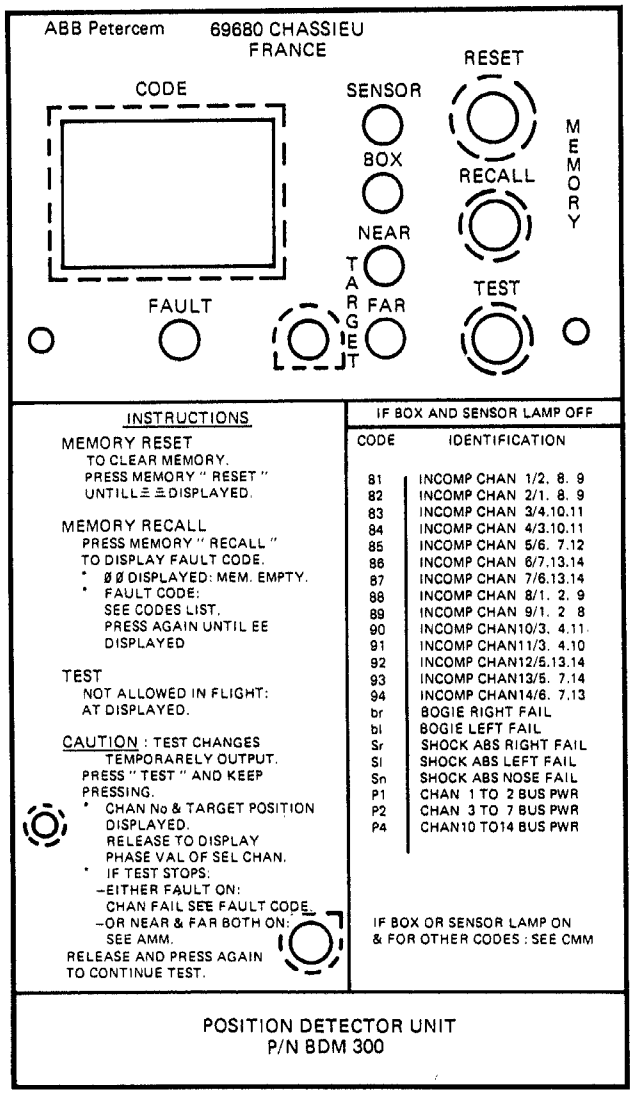
(f)Carry out continuity test of proximity detectors (Ref. Paragraph.3).

3. Proximity Detector Continuity Test
(Ref. Fig. 501)

A. Reason for the Job
(1)Proximity detector continuity test using the proximity detector processing unit 54GB.

B. Procedure
(1)Job set-up
NOTE : This test is only possible with the aircraft on its wheels, and engines shutdown. Engine shutdown signal is provided by engine 2 low oil pressure switch.
In all other configurations, NT code is displayed when test pushbutton is pressed (in).
The test checks the proximity detector processing unit electronic cards, the power supplies continuity of wiring to the sensors and the sensors themselves.
(2)Test
- press TEST pushbutton switch and hold pressed throughout duration of the test.
(a)On proximity detector processing unit 54GB
R NOTE : If the target is in hysteresis zone both indicators "NEAR" and
R "FAR" come on simultaneously and this is not an indication of a
R failed test. Release and press again TEST pushbutton switch to
R continue the test.
The test first checks the test circuit for correct operation
- if test circuit is faulty, display and annunciators remain off and test is interrupted.
- if test is correct, display and all annunciators come on.
The test is entirely automatic.
During the test the channel numbers are displayed successively as each channel is tested accompanied by indication of the position of the associated target.
NOTE : If a fault is detected on one of the channels :
- the digital display indicates the number of the faulty channel
- SENSOR or BOX annunciator comes on to indicate the origin of the fault.
The test is then interrupted and can be continued by again pressing TEST pushbutton switch.
(b)When test is completed release TEST pushbutton switch.





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Proximity Detector Processing Unit
Figure 501

WARNING : CHECK THAT THE LANDING GEAR GROUND SAFETIES INCLUDING WHEEL CHOCKS ARE IN POSITION.
BEFORE APPLYING OR RELIEVING HYDRAULIC SYSTEM PRESSURE, MAKE CERTAIN THAT THE TRAVEL RANGES OF THE CONTROL SURFACES ARE CLEAR.
BEFORE PRESSURIZING HYDRAULIC SYSTEMS, CHECK THAT ALL CONTROLS ARE SET TO CORRESPOND WITH THE ACTUAL POSITION OF THE SERVICES THEY OPERATE.

1. Cleaning of Landing Gear

A. Reason for the Job

(1)To maintain the landing gear as clean as possible in order to facilitate location of any rust, and touching up of paintwork.

B. Equipment and Materials

ITEM	DESIGNATION
(1)	Access Platform
(2)	Warning Notice
(3)	Safety Barriers
(4)	Low-Power Spray Equipment
(5)	Wooden or Plastic Scraper
(6)	Protective Covers
(7)	Brushes
(8)	Sponges
(9)	Cloths
10)Material No. 11-002	Cleaning Agents (Ref. 20-31-00)
11)Material No. 05-027	Special Materials (Ref. 20-31-00)
Referenced Procedures	
- 12-22-32, P. Block 1	Landing Gear Lubrication
- 32-12-11, P. Block 301	Main Gear Main Door - (Ground Door(s) Opening)
- 32-22-11, P. Block 301	Nose Gear Main Door - (Ground Door(s) Opening)

C. Procedure

(1)Job Set-Up

(a)On panel 4VU
- make certain that landing gear control lever is in DOWN position and prohibit its operation by displaying a warning notice.

(b)Between First Officer's and Third Occupant's seats
- make certain that landing gear Free Fall extension control handle is in Normal position.

(c)Position access platform.

(d)Position safety barriers prohibiting access to gear door travel range.
WARNING : MAKE CERTAIN THAT THE DOOR TRAVEL RANGES ARE CLEAR.

(e)Open main and nose gear doors (Ref. 32-12-11, P. Block 301 and 32-22-11, P. Block 301).
WARNING : WHEN DOORS ARE OPEN, MAKE CERTAIN THAT SAFETY COLLARS ARE POSITIONED ON DOOR ACTUATING CYLINDERS.

(f)Make certain that aircraft electrical network is not energized.

(g)It is absolutely essential to protect the following items by means of plastic film covers, greased papers or tarpaulins :

1 Nose and main wheels and their tires.

NOTE : Also protect the outboard side of the main wheels.

2 Brake units

3 All-rubber items :

- Caps
- Bellows

4 Hinges

5 Sliding assemblies

(2)Cleaning

(a)Remove any mud by softening it and then scraping off with a wooden or plastic scraper and sponge soaked in water.

(b)Wipe dry areas from which mud has been removed.

(c)Clean landing gear assembly with Material No. 11-002 beginning at the top.

NOTE : Make certain that solvents do not get into component parts (e.g. sliding tube), and avoid splashing protective coverings. Also avoid splashing electrical wiring and connectors (e.g. proximity sensor).
Cleaning may be performed with a sponge, cloth, brush or low-pressure spray equipment.

(d)Dry with compressed air, if available, or else with dry cloths.

R NOTE : Be particularly careful to dry the MLG mechanical downlock
R indicator system.

(e)Spray or brush Material No. 05-027 uniformly over all cleaned surfaces, avoiding runs.

NOTE : Observe same precautions as those given for cleaning procedure with Material No. 11-002

(3)Close-Up

(a)Remove protective coverings.

(b)Grease items having been cleaned (Ref. 12-22-32, Page 1).

(c)Make certain that working area is clean and clear of tools and miscellaneous items of equipment.

WARNING : MAKE CERTAIN THAT THE DOOR TRAVEL RANGES ARE CLEAR.

(d)Close landing gear doors (Ref. 32-12-11, P. Block 301 or 32-22-11, P. Block 301).

(e)Remove warning notice, access platform and safety barriers.

(f)Close access doors, and remove all ground handling and maintenance equipment.

2. Elimination of Corrosion

CAUTION : TAKE CARE THAT MATERIALS USED DO NOT COME INTO CONTACT WITH ASSEMBLY AREAS.

A. Reason for the Job

(1)To eliminate any traces of corrosion before touching up paintwork, in order to maintain the landing gears as clean as possible.

B. Elimination of Corrosion on Aluminium Alloy (AU2GN) (Nose gear shock strut, main gear brace strut upper arm, lock link assembly and multiple clevis assembly).

(1)Equipment and Materials

ITEM	DESIGNATION
(a)	Nylon Brush
(b)	Wads of Cotton Wool
(c)	Abrasive Paper (Minnesota 3M, Emery, Polishing)
(d)Material No. 11-003	Cleaning Agents (Ref. 20-31-00)
(e)Material No. 12-006	Strippers (Ref. 20-31-00)
(f)Material No. 13-001	Pretreatment for Painting (Ref. 20-31-00)
(g)Material No. 13-002	Pretreatment for Painting (Ref. 20-31-00)
(h)Material No. 11-002	Cleaning Agents (Ref. 20-31-00)

(2)Procedure

(a)Treatment of corroded areas

- Clean corroded area with Material No. 11-002.
- Check paintwork for correct condition (flaking) and delineate corroded area.
- Remove flaked paint and smooth off edges of affected area, using wet-and-dry emery paper.
- Remove corrosion from affected areas with an emery stone.

NOTE : Depth of material removed during rework shall in no circumstances affect mechanical strength of part. In case of doubt, part shall be sent for repair.

- Degrease thoroughly with chlorine-base solvents (Material No.11-003).

(b)Corrosion Elimination and Passivation

- Pickle corroded surface by rubbing lightly with a wad of cotton wool soaked in a solution of 50% Material No. 13-001 and 50% water.
- During deoxidation, do not allow liquid to run. Place protective covers if required.
- Flush with running water and proceed immediately with protective treatment.

(c)Protective treatment

- Prepare a solution of Material No. 13-002 (35 g/liter) (6 oz/US Gal).
- Apply solution to surface under treatment with another wad of cotton wool.
- Leave for approximately 5 minutes, applying more solution at least twice, but without rubbing.
- Make certain that solution covers surface completely.

- Rinse with running water. Dry with filtered compressed air, and leave for 12 hours at ambient temperature.

NOTE : Apply paint as soon as possible after completion of drying procedure.

C. Elimination of Corrosion on Steel (35NCD16-35CD4) including R≤137 hb) (rotating tube, brake bars, actuating cylinders, telescopic strut, cross brace and brace strut lower arm).

(1)Equipment and Materials

ITEM	DESIGNATION
(a)	Brush
(b)	Brush (paint Brush Type)
(c)	Abrasive Paper
R (d)Material No. 05-006	Special Materials (Ref. 20-31-00)
(e)Material No. 11-003	Cleaning Agents (Ref. 20-31-00)
(f)Material No. 11-002	Cleaning Agents (Ref. 20-31-00)

(2)Procedure

(a)Treatment of corroded areas

- Clean corroded areas with Material No. 11-002
- Check paintwork for correct condition (flaking) and delineate corroded areas
- Rub oxidized areas with abrasive paper.
- Degrease with chlorine-base solvents (Materials No. 11-003 etc).

NOTE : Depth of Material removed during rework shall in no circumstances affect mechanical strength of part. In case of doubt, part shall be sent for repair.

(b)Corrosion Elimination and Passivation

R - Using a paint brush or other type of brush, apply Material No. 05-006 undiluted, over corroded areas until oxide is completely transformed and takes on a crystalline aspect.
- Apply a protective finish by the DALIC (cadmium plating) or other method.

NOTE : Apply paint as soon as possible after completion of drying procedure.

D. Elimination of Corrosion on Steel (35NCD16-35CD4 including R≥137 hb) (main gear shock strut assembly, hinge arm, drag strut, bogie beam, torque links)

(1)Equipment and Materials

ITEM	DESIGNATION
(a)	Abrasive Paper
(b)Material No. 11-002	Cleaning Agents (Ref. 20-31-00)
(c)Material No. 11-003	Cleaning Agents (Ref. 20-31-00)

(2)Procedure

(a)Treatment of Corroded Areas

- Clean corroded areas with Material No. 11-002
- Check paintwork for correct condition (flaking) and delineate corroded areas
- Degrease with chlorine-base solvents (Materials No. 11-003 etc.)

(b)Corrosion Elimination and Passivation

- Rub oxidized areas with abrasive paper

NOTE : Depth of material removed during rework shall in no circumstances affect mechanical strength of part. In case of doubt, part shall be sent for repair.

- Degrease with chlorine-base solvents (Material No. 11-003 etc.)
- Apply a protective finish by the DALIC (cadmium plating) or other method.

NOTE : Apply paint as soon as possible after completion of drying procedure.

3.Touching-Up Skydrol-Resistant Paintwork

A. Reason for the Job
(1)To avoid corrosion of any stripped metal surfaces (aluminum alloy, steel).

B. Equipment and Materials

ITEM	DESIGNATION
(1)	Paintbrush
(2)	Brush
(3)	Paint Spray Gun
(4)Material No. 11-002	Cleaning Agents (Ref. 20-31-00)
(5)Material No. 12-006	Strippers (Ref. 20-31-00)
(6)Material No. 16-005	Structure Paints (Ref. 20-31-00)
(7)Material No. 16-001	Structure Paints (Ref. 20-31-00)
(8)Material No. 16-016	Structure Paints (Ref. 20-31-00)

C. Procedure
(1)Preparation of areas to be painted
(a)Clean surfaces to be painted with Material No. 11-002 and dry with clean, filtered compressed air.
(b)Apply Material Orthonetoil-P with a paint brush, and if required, brush surface.
(c)If touch-up is performed indoors, make certain premises are well ventilated.
(d)Never leave material in contact with surfaces for more than 5 hours.
CAUTION : THE MATERIAL MUST NOT, UNDER ANY CIRCUMSTANCES, COME INTO CONTACT WITH RUBBER, PLASTICS OR ASSEMBLY AREAS.
(e)Rinse with water, preferably under pressure, until all paint and cleaning agent have been removed.
(f)Dry, then complete cleaning and degreasing with a chlorine-base solvent. Make certain that surfaces are completely free of oxidation.
(2)Preparation of Paint Mixtures
(a)Primer - Material No. 16-005 (metaflex WR)
NOTE : Mixture may be kept for up to 8 hours at 20°C (68°F).
1 100 parts of primer
2 100 parts of hardener
3 20 parts of thinner
(b)Undercoat Material No. 16-001
NOTE : Mixture may be kept for up to 8 hours at 20°C (68°F).
1 100 parts of primer
2 30 parts of hardener
3 50 parts of thinner
(c)Top-coat Material No. 16-016
NOTE : Mixture may be kept for up to 8 hours at 20°C (68°F) and must be prepared half an hour prior to use.
1 100 parts of primer
2 100 parts of hardener
3 30 parts of thinner

(3)Application of Paint

NOTE : Apply paint with a spray gun, and cover also adjacent surfaces. As far as possible, the paint and the surfaces to be painted must be at the same temperature 15 to 25°C (59 to 77°F). Relative humidity must be 35 to 75%.

(a)Apply a coat of primer. Leave to dry for 2 hours minimum, 3 hours maximum.

(b)Apply a coat of undercoat. Leave to dry for 3 hours minimum, 4 hours maximum.

(c)Apply a coat of top-coat. Leave to dry for 24 hours before touching.

NOTE : Drying time required so that paint is resistant to Skydrol : 7 days.

4. Renewal of Sealants

A. Coating with Fluid Rubber Sealant Compound (Material No. 09-001)

(1)Reason for the Job

(a)To seal assemblies.

(b)To coat the heads of nuts and bolts.

(2)Equipment and Materials

ITEM	DESIGNATION
(a)	Spatula
(b)Material No. 09-001	Sealants (Ref. 20-31-00)
(c)Material No. 11-002	Cleaning Agents (Ref. 20-31-00)

(3)Procedure

(a)Job Set-Up

NOTE : Sealants must be renewed if they contain any defects likely to impair sealing of assemblies, or if they are damaged during removal of components.

1 Make certain that no trace of sealant remains on surface to be treated. Remove any that does remain with a spatula.

CAUTION : TAKE CARE NOT TO DAMAGE PROTECTIVE FINISH.

2 Clean and degrease paintwork with Material No. 11-002.

(b)Coatings

1 Mix sealant (Material No. 09-001) in the following proportions : 100 g (0.22 lb) of compound for 10 g (0.022 lb) of activator.

2 Paint any parts requiring painting, then apply mixture with a brush or spatula.

NOTE : Use only their coatings of 0.2 to 1 mm (0.008 to 0.039 in.) thick.

3 Optimum drying time : 24 to 36 hours.

NOTE : The material may be left as it is or else given a finishing coat with an ambient-drying paint.

WARNING : CHECK THAT LANDING GEAR GROUND SAFETIES INCLUDING WHEEL CHOCKS ARE IN POSITION.

1. Reason for the Job

To eliminate any traces of nicks and dings found on landing gear.
The following criteria are indication to help airlines

2. Equipments and Materials

ITEM	DESIGNATION
A. Material No. 13-002	Preteatement for Painting
Referenced Procedure - 32-00-00, P. Block 701	General

3. Approved Repairs

A. Mechanical Damage Repair

NOTE : Proper evaluation and treatment of mechanical damage to steel-base metal is important.
All such damage must be closely examined for cracks.

(1)Any damaged part exhibiting one or more of the following conditions must be replaced or repaired.

(a)Crack

(b)Dent in thin wall hollow part
(Deformation which also affects the inside surface).

(c)Deformation in a clevis or overall deformation.

(2)Minor damage resulting from nicks or dings may be reworked, without removing the part from the airplane as follows :

NOTE : These criteria can only apply to the current areas of the parts, that is to say the areas without abrupt change in shape and outside assembly and sliding areas in which there are contacts with other materials.

NOTE : Special precautions must be taken to prevent high-strength steels from being burnt when rework is carried out.

(a)Nicks and dings less than 0.1 mm (0.004 in.) in depth must be repainted (Ref. 32-00-00, P. Block 701, Para. 3.).
They must be smoothed, shot-peened and cadmium-plated for steels or glass-bead peened and protected by Material No. 13-002 for aluminium alloys then, in all cases, painted at next major overhaul.

(b)Nicks and dings between 0.1 and 0.8 mm (0.004 and 0.03 in.) in depth should be reworked smoothed and painted immediately (Ref. 32-00-00, P. Block 701 Para. 3.). Reworked areas should be shot peened and cadmium plated for steels or glass-bead peened and protected by Material No. 13-002 for aluminium alloys, then painted, in all cases at next major overhaul. These defects should not affect an area larger than 1.3 cm^2 (1/5 sq. in.).

(c)Defects deeper than 0.8 mm (0.03 in.) must be subjected to a technical advice from the Manufacturer.

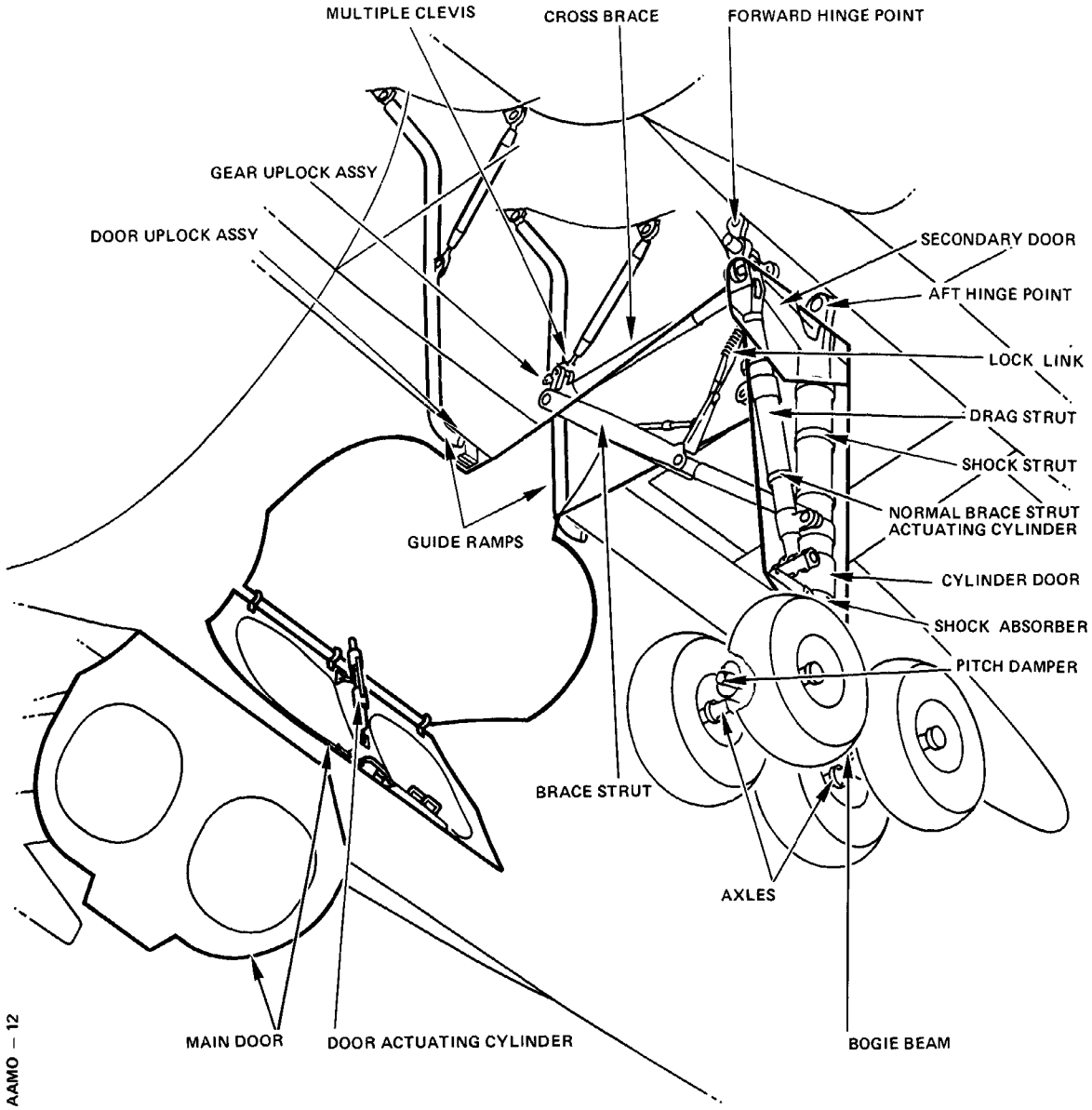
MAIN GEAR AND DOORS - DESCRIPTION AND OPERATION

1. General

(Ref. Fig. 001)

Each main gear is installed in the wing. The main gear is hinged at its upper part and includes a hydraulic actuating cylinder, a folding brace strut and a direct-acting shock absorber.

Three doors close off each main gear well and restore the wing lower surface profile.



Main Gear and Doors
Figure 001

WARNING : CHECK THAT THE LANDING GEAR GROUND SAFETIES INCLUDING WHEEL CHOCKS ARE IN POSITION.
BEFORE APPLYING OR RELIEVING HYDRAULIC SYSTEM PRESSURE, MAKE CERTAIN THAT THE TRAVEL RANGES OF THE CONTROL SURFACES ARE CLEAR.
BEFORE PRESSURIZING HYDRAULIC SYSTEMS, CHECK THAT ALL CONTROLS ARE SET TO CORRESPOND WITH THE ACTUAL POSITION OF THE SERVICES THEY OPERATE.

1. Equipment and Materials

ITEM	DESIGNATION
A.	Safety Barriers
B.	Warning Notice
C.	Access Platform 2.60 m (8 ft. 7 in.)
Referenced Procedures	
- 29-10-00, P. Block 301	Main Hydraulic Power - Pressurization/Depressurization
- 32-12-11, P. Block 301	Main Gear Main Door - (Ground Door(s) Opening)

2. Procedure

A. Job Set-Up
(1)On panel 4VU
- make certain that landing gear control lever is in DOWN position and prohibit its operation by displaying a warning notice.

(2)Between First Officer's and Third Occupant's seats
- make certain that Free Fall extension control handle is in Normal position.

(3)Install access platform
(4)Position safety barriers to prohibit access to door travel ranges.
WARNING : MAKE CERTAIN THAT DOOR TRAVEL RANGES ARE CLEAR.
(5)Open main gear doors (Ref. 32-12-11, P. Block 301).
WARNING : MAKE CERTAIN THAT SAFETY COLLARS ARE POSITIONED ON DOOR ACTUATING CYLINDERS.
(6)Depressurize Green hydraulic system (Ref. 29-10-00, P. Block 301) and prohibit its operation by displaying a warning notice :
- on Green hydraulic system ground connectors
- on panel 427VU to prohibit operation of Green electric pumps (ELEC PUMPS pushbutton switch).

B. Check
(1)General check
(a)Check all lubricators for correct condition and cleanliness.
(b)Check protective paintwork on all surfaces of landing gear components (gear shock struts, brace and drag struts, bogie beams, actuating cylinders, rods and uplock assemblies) for correct condition.
CAUTION : WHENEVER THE SLIGHTEST BARE-SPOT IS EVIDENCED ON PAINTWORK,

TOUCH UP AS REQUIRED TO PREVENT OXIDATION.

(c)Check on all attach and hinge components that
- screws and nuts are correctly tightened,
- safetying devices (cotter pins, lockplates, lockwire) are installed and are effective,
- bolts subject to rotation, screws, nuts and washers are in correct condition (no evidence of oxidations).

(d)Check identification plates for security of attachment.

(e)Check bonding jumpers for correct condition.

(2)Uplock assembly check

(a)Make certain that there is no evidence of impact damage on uplock hooks in uplock roller contact area.

(b)Check spring rod for correct condition.

(c)Check manual uplock release controls for correct condition.

(3)Cross brace assembly check

(a)Check that the multiple clevises are free from distortion and incipient cracks.

(b)Check that cross brace is free from distortion and incipient cracks.

(c)Check springs for correct condition.

(4)Actuating cylinder (gears and doors) and brace strut actuating cylinder check.

(a)Check cylinder end and end fitting lockrings/nuts for security of attachment and correct safetying (snap ring for cylinder end and lock-plate for end fitting).

(b)Check for scores, pitmarks, oxidation and flaked areas on the chromium plated rods, especially in the chromium limit area (if necessary use magnifying glass).

(c)Clean chromium plated rods with cloth impregnated with aircraft system hydraulic fluid.

(5)Brace strut assembly check

(a)Make certain that brace strut and lock link assembly are free from distortion and incipient cracks, especially at hinge attachment points.

(6)Gear leg check

(a)Make certain that gear leg components are free from distortion and incipient cracks, especially at hinge attachment points.

(b)Check shock strut lower section (leak detector) for leakage of hydraulic fluid.

(c)Check shock absorber sliding tube for scores, pitmarks, flaking and oxidation especially where chrome plating ends.

(d)Check uplock roller for correct condition (dent brinelling) and make certain it moves freely.

(7)Pitch damper check (Ref. Fig. 601)

R For pitch damper without fluid level indicator :
- Check pitch dampers (valve, plug, rod) for correct condition. Check that red pressure drop indicator button is not protruding.

NOTE : Protrusion of red button indicates incorrect conditioning of pitch damper or abnormal pressure drop.

- Recommended action in the event of pressure drop indication (red button protruding).
  . Manually reset pressure drop indicator by pressing in red button.

If manual reset is possible (red button remains pressed in), further flights are authorized (e.g. return to main base). However, if, after several attempts, manual reset proves impossible (red button remains out), pitch damper shall be serviced prior to any further flight (Ref. 12-12-32, P. Block 1).

For pitch damper equipped with fluid level indicator :

- on visual indicator, check pitch damper hydraulic fluid reserve. Piston rod must not be in red zone.

NOTE : Piston rod in red zone indicates incorrect conditioning of pitch damper : low fluid level.

R

- Check pitch damper for correct condition paying special attention to rod, charging valve, filling plug and level indicator. (no traces of impact)
- Check that fluid level indicator is not in red zone and that red pressure drop indicator button is not protruding (red button protruding).

(a)ACTION TO BE TAKEN IN THE EVENT OF LOW LEVEL INDICATION :

Indicator rod in red zone with aircraft resting on to wheels.

- Fully service pitch damper (Ref. 12-12-32, P. Block 1).

NOTE : With the aircraft resting on its wheels, the fluid level indicator rod out of red zone indicates that there is sufficient fluid to ensure landing gear retraction at a temperature 55°C (131°F) lower than the temperature at which the reading is taken.

(b)ACTION TO BE TAKEN IN THE EVENT OF PRESSURE DROP :

Fluid level indicator (not in red zone).

- Pressure drop indication (red button protruding) indicates that pitch damper requires servicing (nitrogen chamber not charged) or an abnormal pressure drop in nitrogen chamber.
  The indicator pops out when the pressure drops below 60 bars (870 psi).
  Pitch damper must be charged prior to next flight (Ref. 12-12-32, P. Block 1).

NOTE : If pressure drop indicator can be rearmed (with aircraft resting on its wheels), one flight to enable the aircraft to return to its main base is authorized without charging.

(8)Landing gear door check

(a)Check doors for correct condition (evidence of distortion).

(b)Check doors for correct attachment.

(c)Check door actuating cylinder line unions for hydraulic fluid leakage.

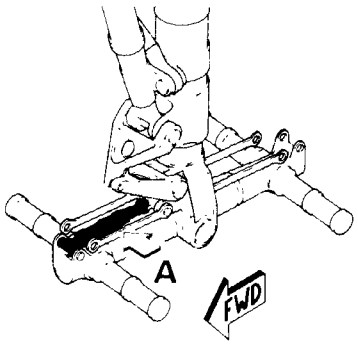
(9)Downlock indicator check

(a)Check that landing gear downlock indicators, extend from their housing on wing upper surface.

(10)Hose check

(a)If cure date is marked on a collar indicating the service life limit month and year, check this date. If this date has been reached, replace hose.

(b)Make certain that correct diameter clamps are installed, check for correct condition, security of attachment and evidence of fretting of lines due to vibration and/or pressure surges.



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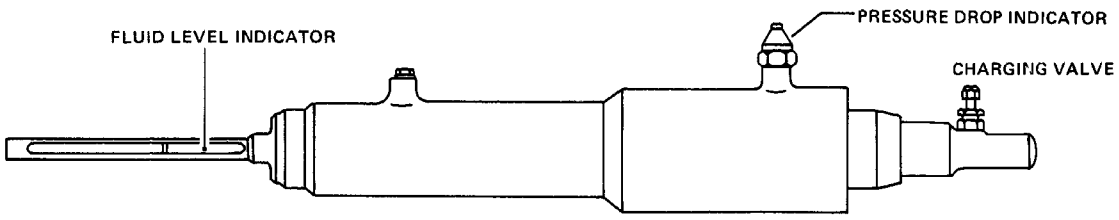
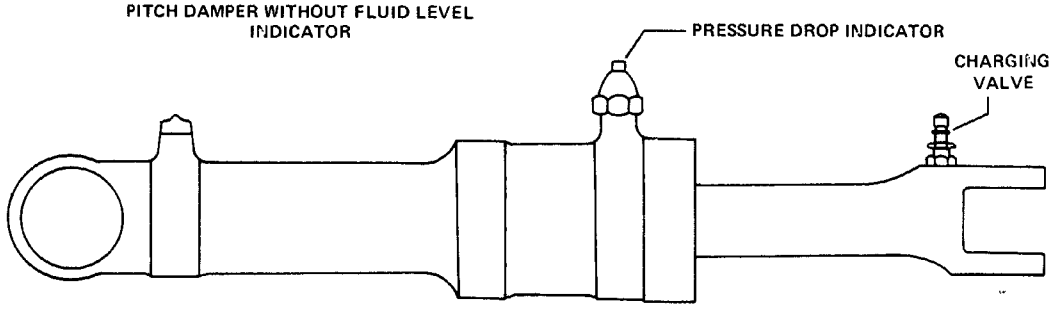
PITCH DAMPER WITH FLUID LEVEL INDICATOR



A

PITCH DAMPER WITHOUT FLUID LEVEL INDICATOR



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Pitch Damper
Figure 601

(c)Hose routing check
- For evidence of fretting with other hoses lines, adjacent partitions or units.
- For evidence of twisting.

(d)Make certain there is sufficient free-play by moving the center part of the hose up and down.

(e)Check for hydraulic leakage at unions and that safetying provisions are correct.

(11)Rigid line check

(a)Check for distortion, incipient cracks, damage due to impact especially at bends and at unions connecting lines to the various units.

(b)Make certain that no sheathing, rail or metallic part can damage the line.

(c)Check for hydraulic leakage at unions, security of attachment and safetying.

(d)Check brackets, line support blocks and attachment clamps for security of attachment.

(12)Hydraulic equipment check

(a)Check attaching hardware for security of attachment and safetying. Check for hydraulic fluid leakage at unions.

(b)On electrically powered equipment check connectors for security of attachment and safetying.

(c)On mechanically controlled equipment, check hinge points for correct condition.

(13)Electrical wiring check

(a)Check that electrical connectors are correctly connected and safetied.

(b)Make certain that electrical connectors are not contaminated by any fluids. Clean if necessary.

(c)Make certain that electrical wiring is fully protected and is in correct condition.

C. Close-Up

(1)Make certain that working area is clean and clear of tools and miscellaneous items of equipment.
WARNING : MAKE CERTAIN THAT DOOR TRAVEL RANGES ARE CLEAR.

(2)Close main landing gear doors (Ref. 32-12-11, P. Block 301).

(3)Remove warning notices.

(4)Close access doors, remove access platform and safety barriers.

(5)Remove all ground handling and maintenance equipment, standard and special tools, together with ground power and replenishing equipment, all access equipment and miscellaneous items.

R

MAIN GEAR - DESCRIPTION AND OPERATION

1. General

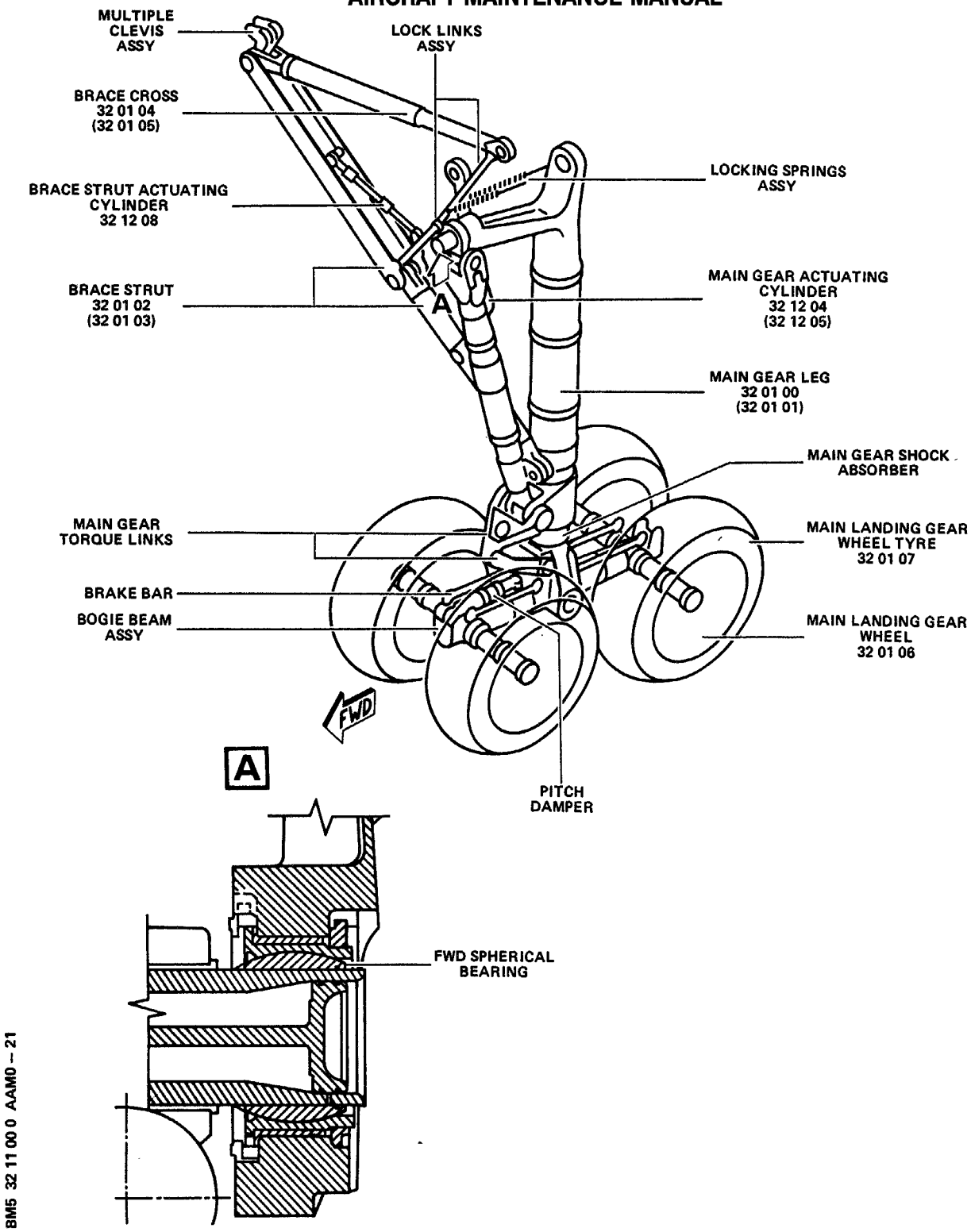
Each main gear is suspended from the wing at two points as follows :
At the front end, from a trunnion incorporated in the front of the hinge arm, with the trunnion pivoting in a plain spherical bearing. The hinge arm is attached fore-and-aft between the drag strut and the shock strut.
At the rear end, from a pivot end fitting installed at the top of the shock strut. This fitting includes a plain spherical bearing which swings in a clevis attached to the aircraft structure.
Outward movement of the landing gear is restricted by a doublelink brace strut. Gear is retracted and extended by a hydraulic actuating cylinder.
A roller mounted on the gear automatically engages with an uplock assembly installed on the aircraft structure with gear in fully uplocked position.
With aircraft on the ground, the majority of fuselage and wing loads are transmitted through the landing gear strut assemblies to the four-wheel main gear bogies. Each wheel is provided with hydraulic disc type brakes with anti-skid control system.

2. Component Location

(Ref. Fig. 001)

FIN	FUNCTIONAL DESIGNATION	PANEL	ZONE	ACCESS DOOR	ATA REF.
320100	LEG-MAIN GEAR, L		731		32-11-11
320101	LEG-MAIN GEAR, R		741		32-11-11
320102	STRUT-BRACE, L		731		32-11-16
320103	STRUT-BRACE, R		741		32-11-16
320104	BRACE-CROSS, L		731		32-11-31
320105	BRACE-CROSS,R		741		32-11-31
320106	WHEEL-MAIN LANDING GEAR		731		32-41-11
			741		
320107	TIRE-MAIN LANDING GEAR WHEEL		731		32-41-13
			741		
321204	ACTUATING CYL-MLG, L		731		32-31-46
321205	ACTUATING CYL-MLG, R		741		32-31-46
321208	ACTUATING CYL-MLG BRACE STRUT, L		731		32-31-55
321209	ACTUATING CYL-MLG BRACE STRUT, R		741		32-31-55
	BEARING-FWD SPHERICAL, L/R		731		32-11-24
			741		
	ABSORBER-MAIN GEAR SHOCK, L/R		731		32-11-13
			741		
	LINK ASSY-LOCK, L/R		731		32-11-17
			741		
	BEAM ASSY-BOGIE, L/R		731		32-11-14
			741		
	DAMPER-PITCH, L/R		731		32-11-15
			741		
	BRACE ASSY-CROSS, L/R		731		32-11-18
			741		
	SPRINGS ASSY-LOCKING, L/R		731		32-11-19

FIN	FUNCTIONAL DESIGNATION	PANEL	ZONE	ACCESS DOOR	ATA REF.
			741		
	CLEVIS ASSY-MULTIPLE, L/R		731		32-11-26
			741		
	BARS-BRAKE, L/R		731		32-11-28
			741		
	TORQUE LINKS-MAIN GEAR, L/R		731		32-11-27
			741		


MULTIPLE CLEVIS ASSY
LOCK LINKS ASSY
BRACE CROSS 32 01 04 (32 01 05)
LOCKING SPRINGS ASSY
BRACE STRUT ACTUATING CYLINDER 32 12 08
MAIN GEAR ACTUATING CYLINDER 32 12 04 (32 12 05)
BRACE STRUT 32 01 02 (32 01 03)
A
MAIN GEAR LEG 32 01 00 (32 01 01)
MAIN GEAR SHOCK ABSORBER
MAIN GEAR TORQUE LINKS
MAIN LANDING GEAR WHEEL TYRE 32 01 07
BRAKE BAR
BOGIE BEAM ASSY
MAIN LANDING GEAR WHEEL 32 01 06
FWD
A
PITCH DAMPER
FWD SPHERICAL BEARING
BM5 32 11 00 0 AAM0 - 21

Main Gear
Figure 001

3. Main Gear Structure

A. General Design

The general design of the main gear is as follows:

(1) Gear leg with integral shock absorber and pivoting four-wheel twin-tandem bogie beam.

(2) Folding brace strut/lock link assembly

(3) Lateral loads transmitted to the fuselage and wing through a cross brace assembly

(Ref. Fig. 002, 003, 004)

B. Geometry (Ref. Fig. 005)

The geometry of the various components is however specific to the A310

(1) The main gear is normally equipped with 46x16 tires but can as an option be equipped with 49x17 tires and after a few minor modifications with 49x19 tires.

(2) The main gear track under static load is 9.6 m.

(3) The aircraft attitude under static load is around 0° (0° 10' at 25% CG)

(4) The distance between the forward and aft axles is 1.397 m and the wheel track is 0.927 m (identical with the A300)

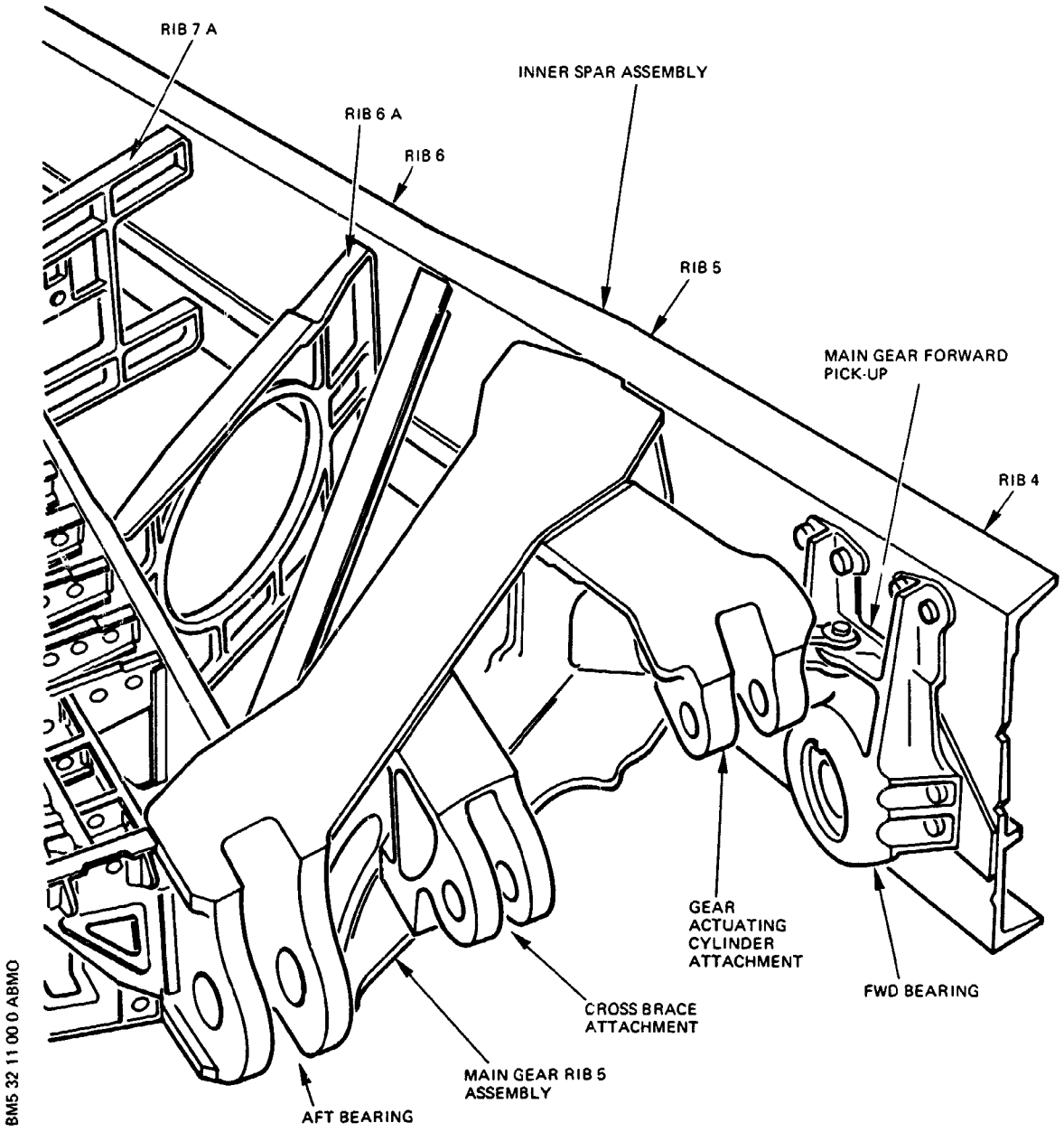
(5) The center of the bogie beam is located at 52.5% MAC under static load. The latter condition associated with the location of the wheel well in the fuselage results in the gear uplocked position of the bogie beam being offset 0.665 m forward of the gear downlocked position.

(6) This, combined with the necessity to reduce the recesses in the doors and have the centerline of the bogie beam in the gear uplocked position parallel to the fuselage datum line, has resulted in the main gear hinge axis being inclined :

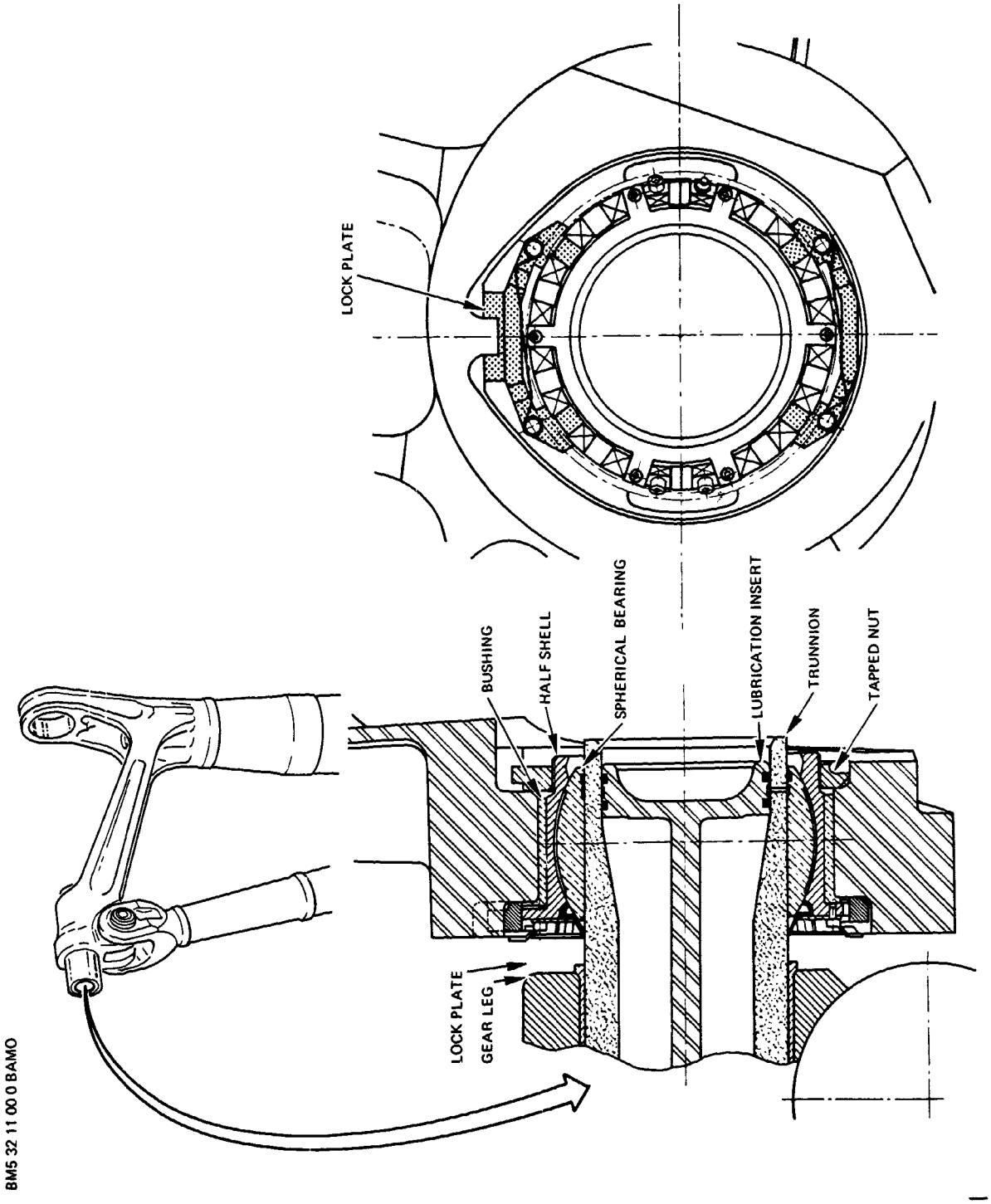
- 5° 10' with respect to the fuselage datum
- 6° 10' with respect to the aircraft symmetry plane

(7) Furthermore, the combination of the track and the aircraft attitude results in a gear leg lateral tilt of 2° 04'

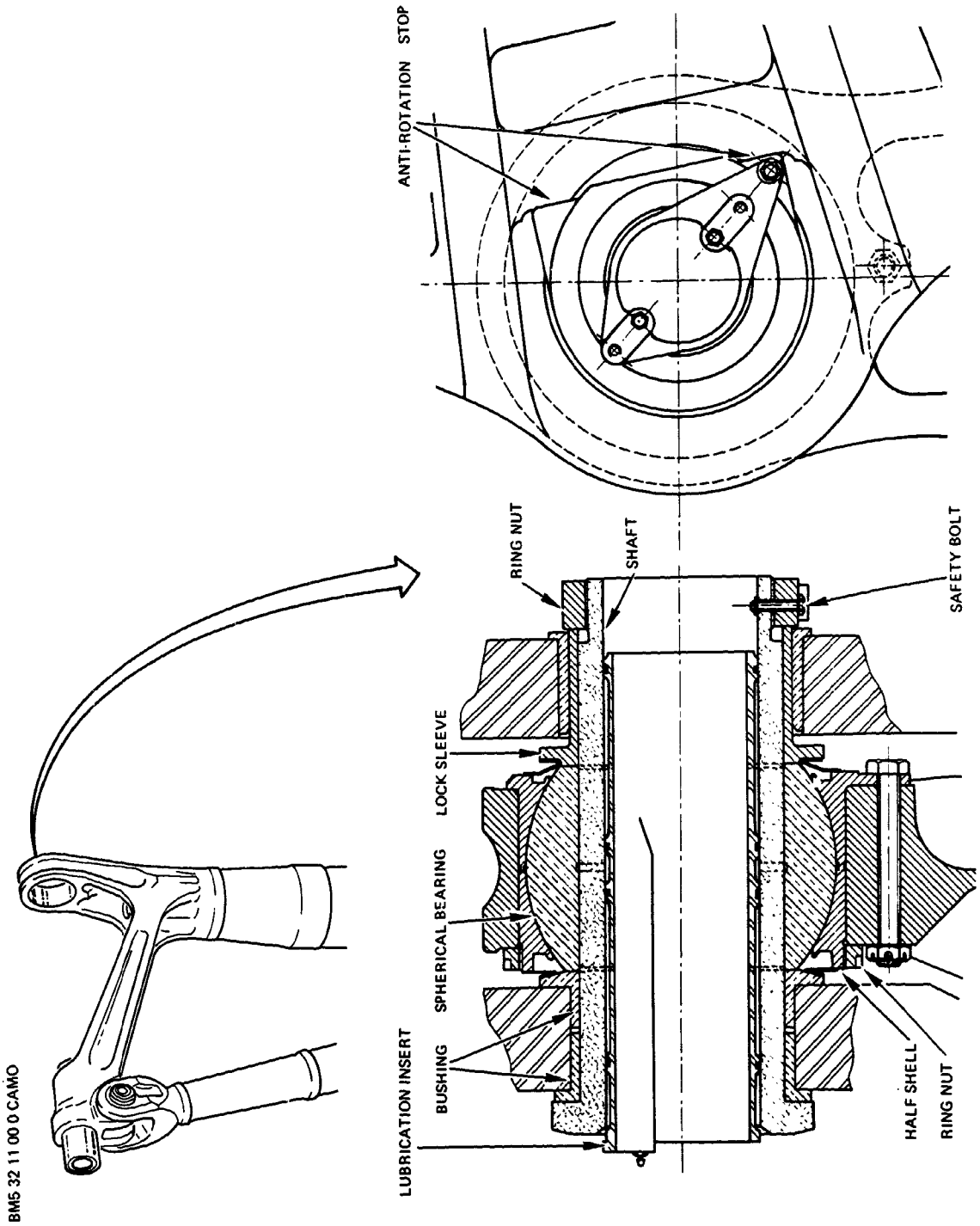
(8) In flight with landing gear extended, the bogie beam adopts a pitch-down attitude of approximately 10° with respect to the aircraft center line. (approximately 7° with respect to the shock absorber axle.).



Landing Gear - Pick up Fittings
Figure 002



Main Gear - Fwd Bearing
Figure 003



Main Gear - Aft Bearing
Figure 004

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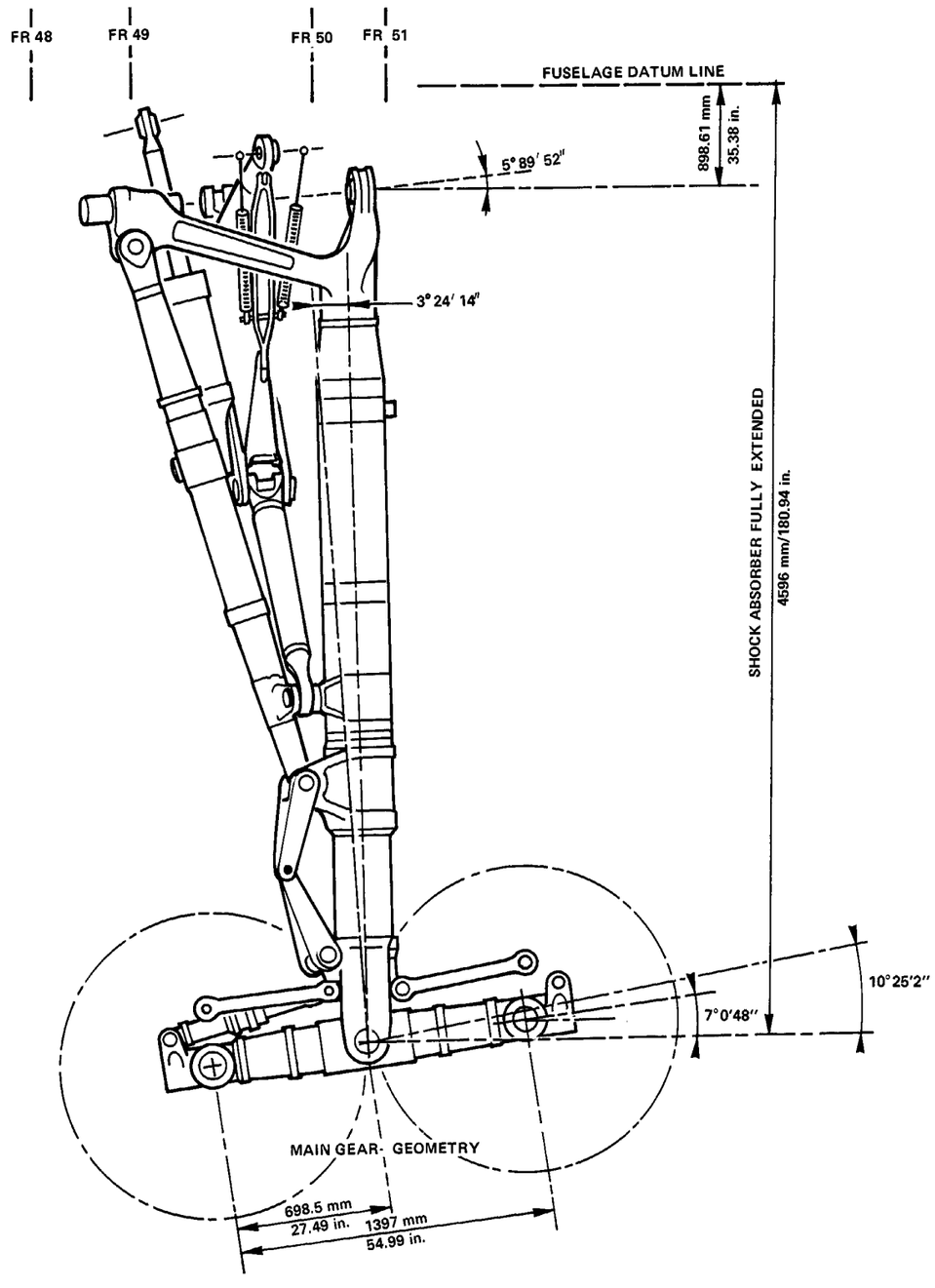

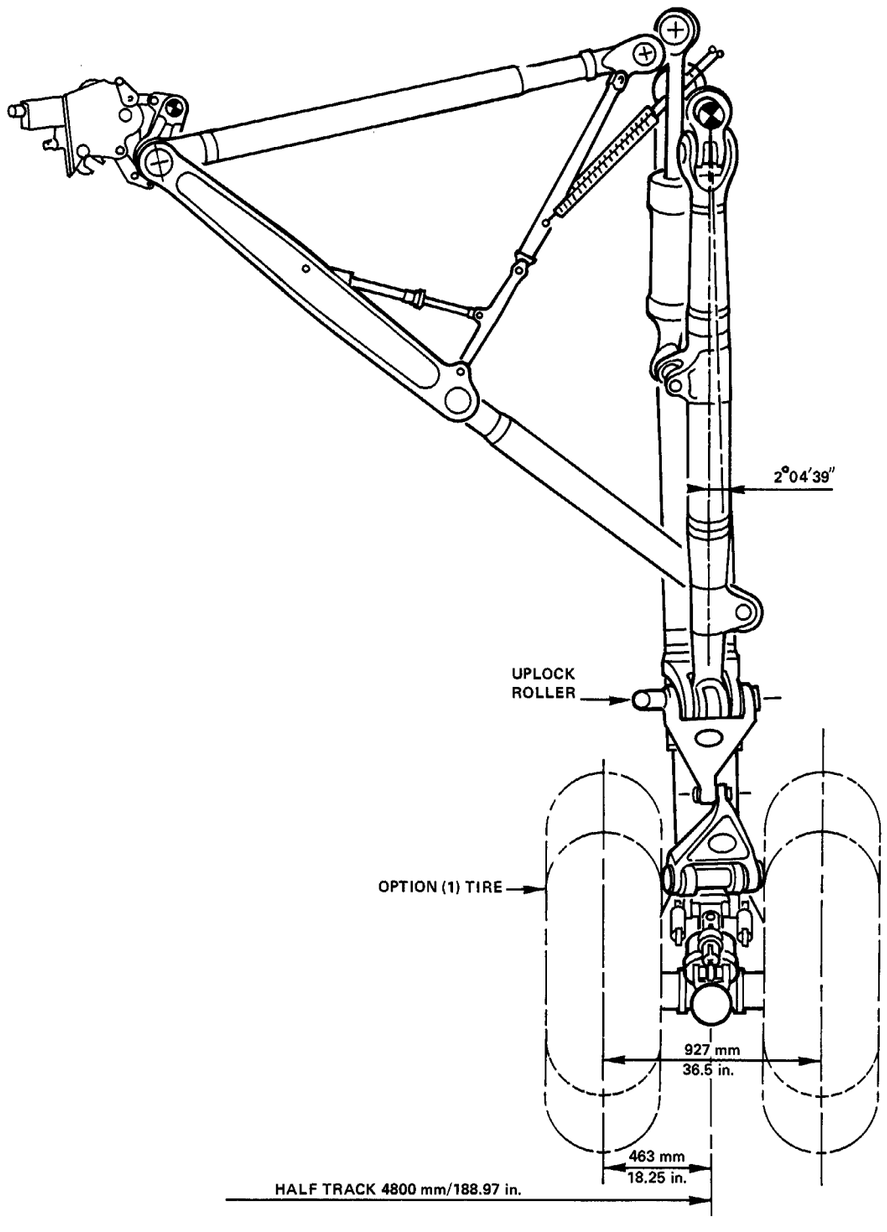

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Main Gear - Geometry
Figure 005

R C. Main Components
R The main components of the main landing gear are as follows :
R (1)The shock strut/drag strut assembly. The integral shock strut and hinge
R arm is equipped with the forward and aft hinge points and the drag strut.
R The uplock roller is located on the shock strut/drag strut/torque link
R attachment shaft (the roller is not adjustable)
R (2)The hydraulic actuating cylinder attached directly to the drag strut.
R (Ref. 32-31)
R (3)The cross brace assembly which takes up the lateral loads and features a
R single cross brace
R (4)The brace strut assembly comprised of the brace strut (structural) and
R the lock link assembly (gear downlocking) arranged in a single plane
R (perpendicular to the hinge axis) and constituting an extremely rigid
R side brace. The effects of the brace strut assembly on the aerodynamic
R loads during retraction are negligible.
R (5)The oleo-pneumatic shock absorber housed in the sliding rod. The
R operating principle of the shock absorber is the same as that of the A300
R shock absorber.
R (6)The bogie beam pivoting on the sliding rod and connected to the shock
R strut by torque links.
R (7)The pitch damper (one only) equipped with a pressure drop indicator.
R (8)The brake bars (one per brake) with one end connected to the brake and
R the other to the lower part of the sliding rod.
R (9)The brace strut actuating cylinder which assists gear downlocking. The
R cylinder is connected to the brace strut upper stay and the sliding rod
R to the lower lock link (Ref. 32-31)
R (10)Two locking springs which assist gear downlocking during Free Fall
R extension (one spring only is sufficient to ensure gear downlocking)
R (11)Three proximity detectors (duplicated) which provide the following
R information :
R - angular position of the bogie beam (detectors mounted on the bogie
R beam) (Ref. Fig. 007)
R - shock absorber compression (detectors located adjacent to the torque
R link upper hinge)
R - alignment of the lock link assembly (detectors located on the lock
R link center hinge) (Ref. Fig. 006)
R (12)The gear downlock visual indicator controlled by a system of rods and
R bellcranks.
R (13)The electrical cables and hydraulic lines designed and routed taking
R into account the risk of tire burst (Ref. Fig. 008, 009, 010)

D. Materials Used
(1)High-tensile steel 35NCD16 treated at 180-200 hbars
Components produced in this material are :
- Shock strut
- Sliding rod
- Torque links
- Bogie beam
- Various shafts

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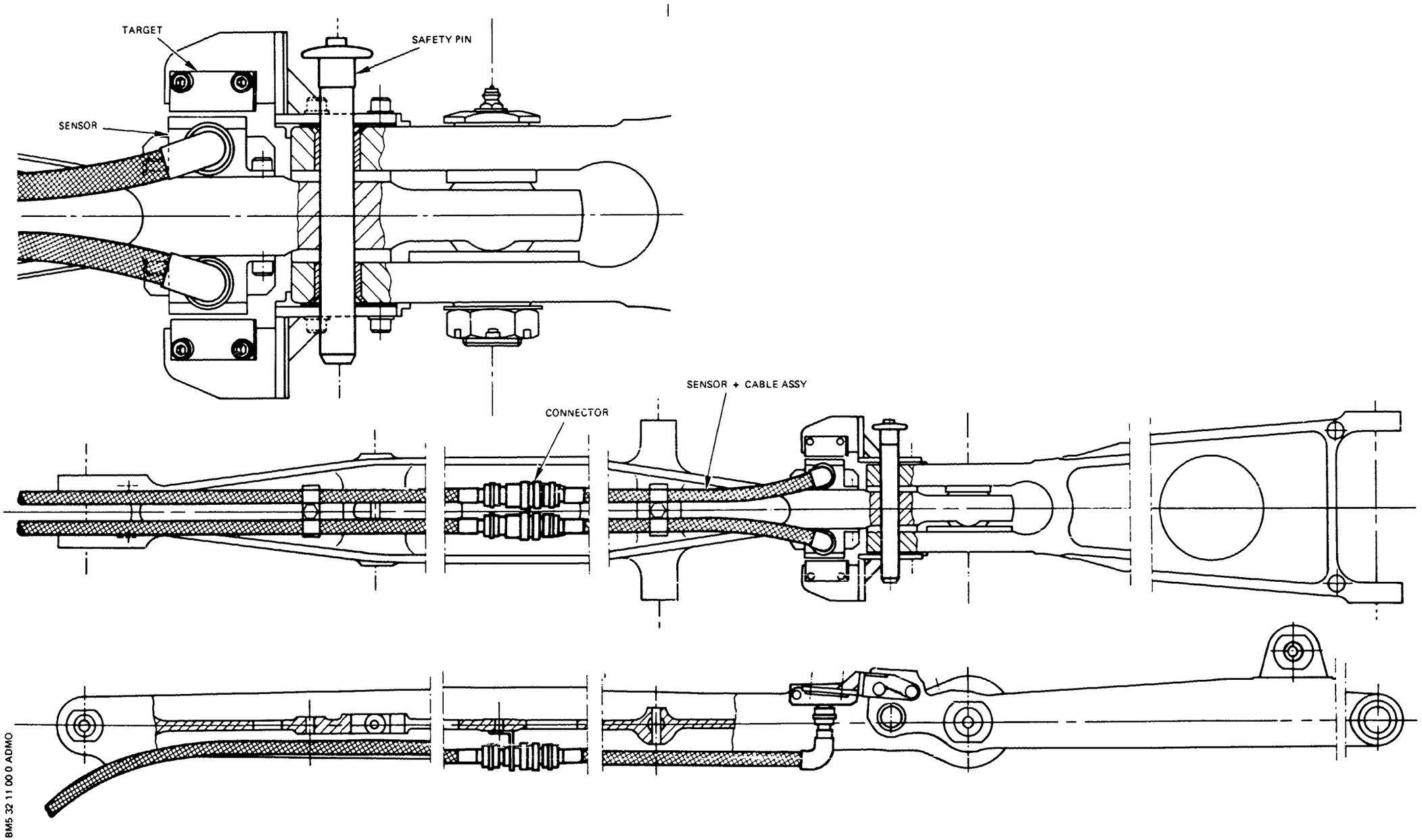
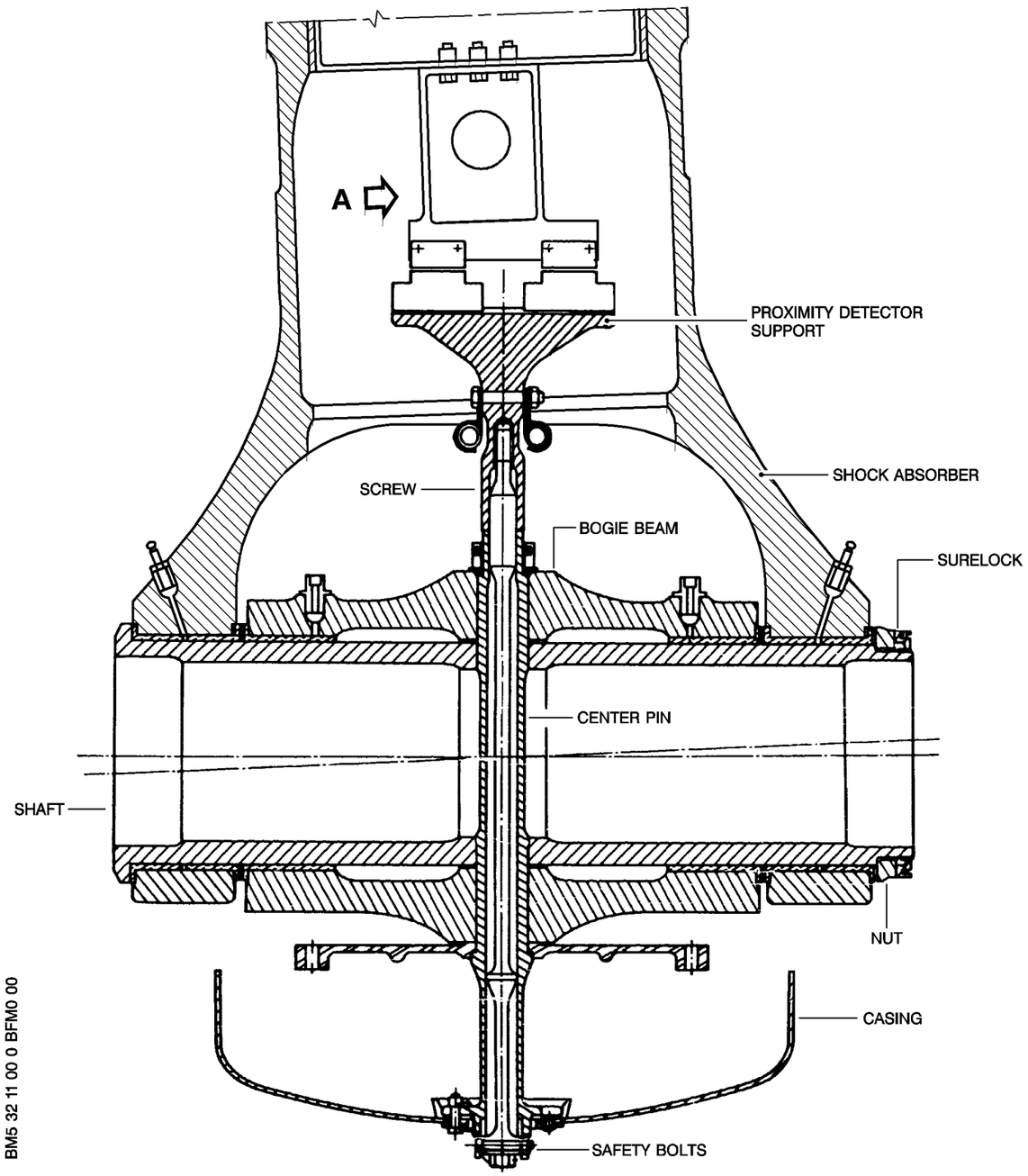
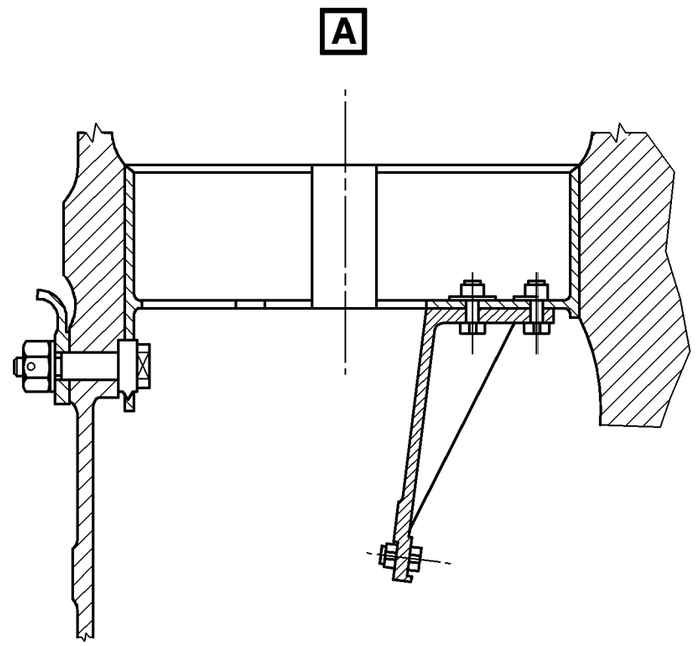


Lock Link Assy - Proximity Detectors
Figure 006





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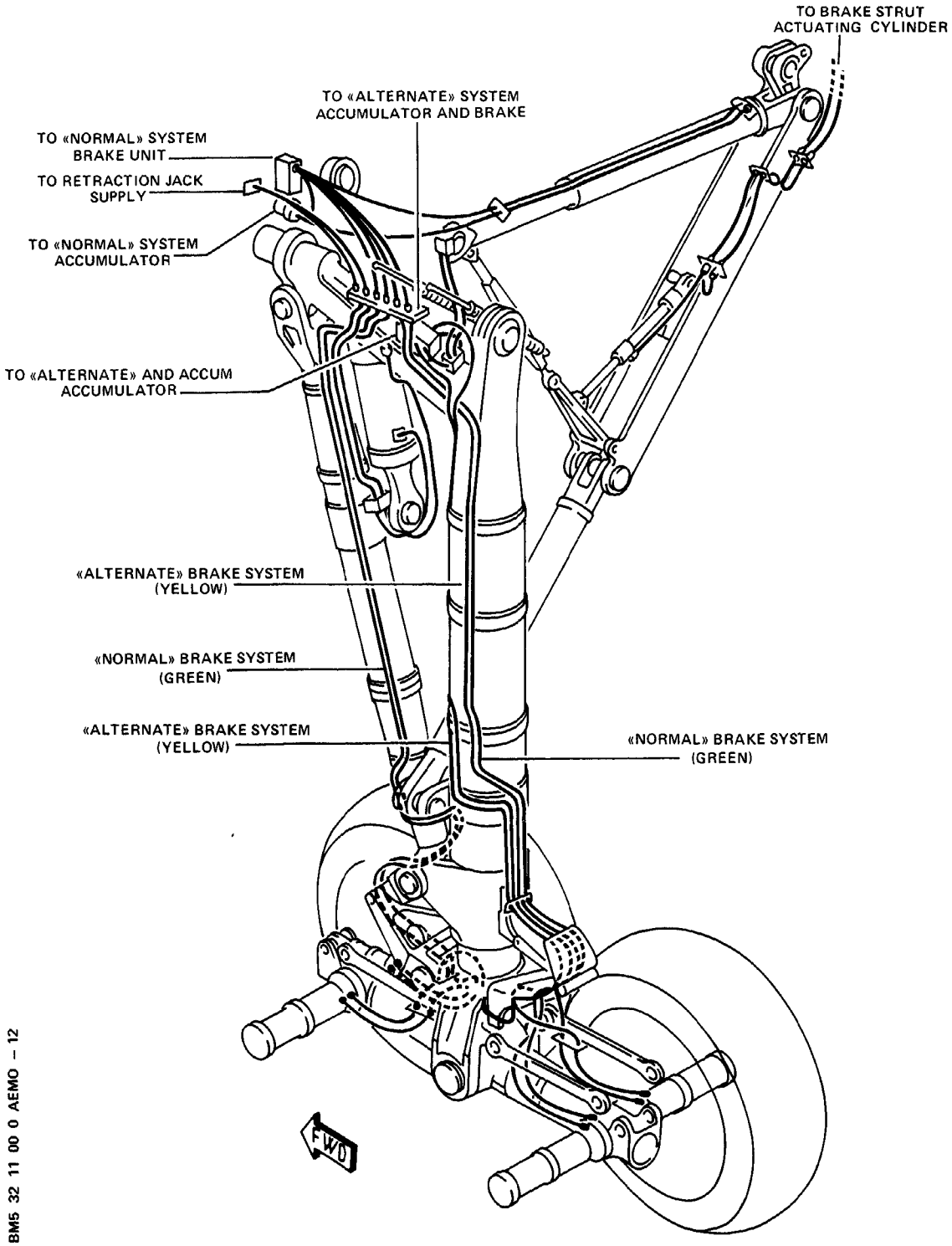
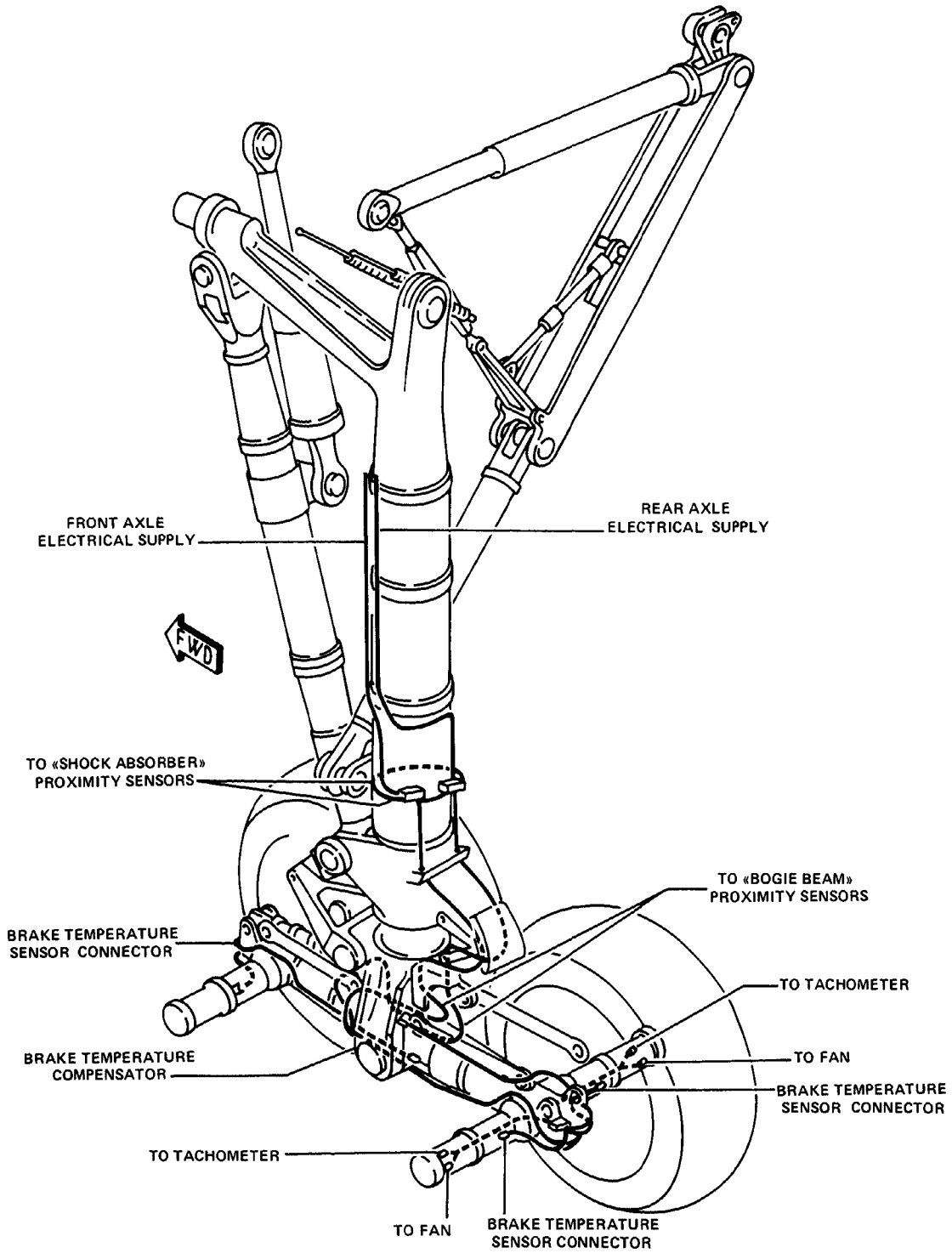
Bogie Beam - Proximity Detectors
Figure 007

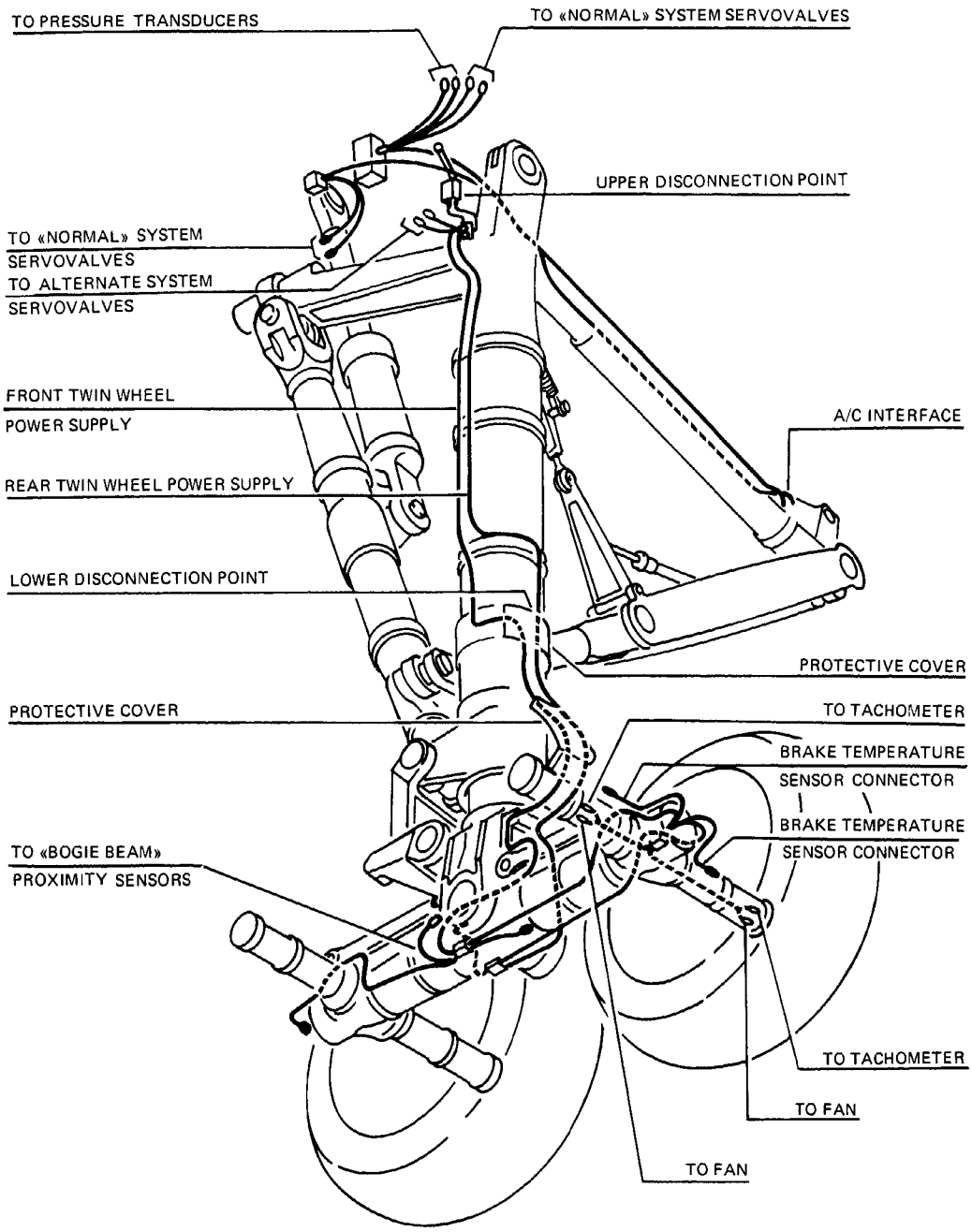
R


TO BRAKE STRUT ACTUATING CYLINDER
TO «ALTERNATE» SYSTEM ACCUMULATOR AND BRAKE
TO «NORMAL» SYSTEM BRAKE UNIT
TO RETRACTION JACK SUPPLY
TO «NORMAL» SYSTEM ACCUMULATOR
TO «ALTERNATE» AND ACCUM ACCUMULATOR
«ALTERNATE» BRAKE SYSTEM (YELLOW)
«NORMAL» BRAKE SYSTEM (GREEN)
«ALTERNATE» BRAKE SYSTEM (YELLOW)
«NORMAL» BRAKE SYSTEM (GREEN)
FWD
BM5 32 11 00 0 AEMO – 12

Hydraulic Line Routing
Figure 008



Electrical Cable Routing
Figure 009



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Electrical Cable Routing
Figure 010

(2)High-tensile steel 35NCD16 treated at 127-137 hbars or 35CD4 treated at 118-132 hbars
Components produced in this material are :
- Drag strut
- Cross brace
- Brake bars
- Brace strut lower stay
- Actuating cylinder
- Brace strut actuating cylinder
- Pitch damper
- Various shafts.

(3)Light alloy 7010 treated at 50 hbars or more
- Lock links
- Brace strut upper stay

(4)Steel 300M for hinge pins/shafts.

(5)Bronze alloy 4219A6 treated at 83-93 hbars for replaceable bushes.

E. Surface Treatment and Protection

(1)Shot peening for parts in high tensile steel 35NCD16

(2)Chromium plating for parts (cylinders or bodies) subjected to hydraulic pressure.

(3)Light cadmium plating for all steel 35NCD16 and 35CD4 surfaces except sliding surfaces or surfaces in contact with hydraulic fluid
Thickness of cadmium plating : 10 to 15 μ

(4)Glass bead peening for load-carrying parts in AU2GN or 7010.

(5)Chromium plating followed by grinding for all parts in steel 35NCD16 treated at 180-200 hbars and 123-137 hbars. The thickness of the chromium plating on the shock absorber and actuating cylinder sliding rods is at least 100 μ. On the other surfaces and more especially on the hinge pins/shafts, the thickness is at least 50 μ.

(6)Cadmium electroplating for parts in steel 25CD45 and on several bushes in bronze UZ19A6

(7)Chromic anodizing of parts in AU2GN or 7010.

(8)Rilsan coating on pistons.

(9)Paint : all external surfaces, except those on sliding parts,and all internal surfaces, except those on sliding parts or in contact with hydraulic fluid, are painted, after cadmium plating or anodizing, with SIKKENS paint :
- one priming phosphating coat 10 to 15 μ thick.
- one post-priming coat of polyurethane paint 15 to 20 μ thick
- one top coat of polyurethane paint, aluminum color 30 to 35 μ thick.

(10)All fixed non-sealed connections are coated with P.R.

4. Main Gear Shock Absorber

A. General

(1) The shock absorber is of the oleo-pneumatic type with no separator between the hydraulic fluid (FHS) and the nitrogen. It is housed in the shock strut and operates on the same principle as that of the A300.
(Ref. Fig. 011)

(2) The shock absorber is of the single chamber, fluid restriction, double-acting type.
The compressed nitrogen acts directly on the hydraulic fluid tending to extend the shock absorber. The shock absorber has a full stroke of 450mm (17.716 in.).

B. Operation (Ref. Fig. 012)

(1) During extension the fluid is forced through small holes arranged in the sliding rod and at the end of extension through a metering hole in the metering tube.

(2) During compression the fluid is forced through another set of metering holes of larger diameter.

(3) The shock absorber compression threshold is relatively low (charging pressure = 22 bars) (319 psi).

(4) The shock absorber GT ring seals are located on the sliding rod upper part.
(Ref. Fig. 013)

(5) Hydraulic fluid replenishing and nitrogen charging are performed through a single servicing valve.
(Ref. Fig. 014)

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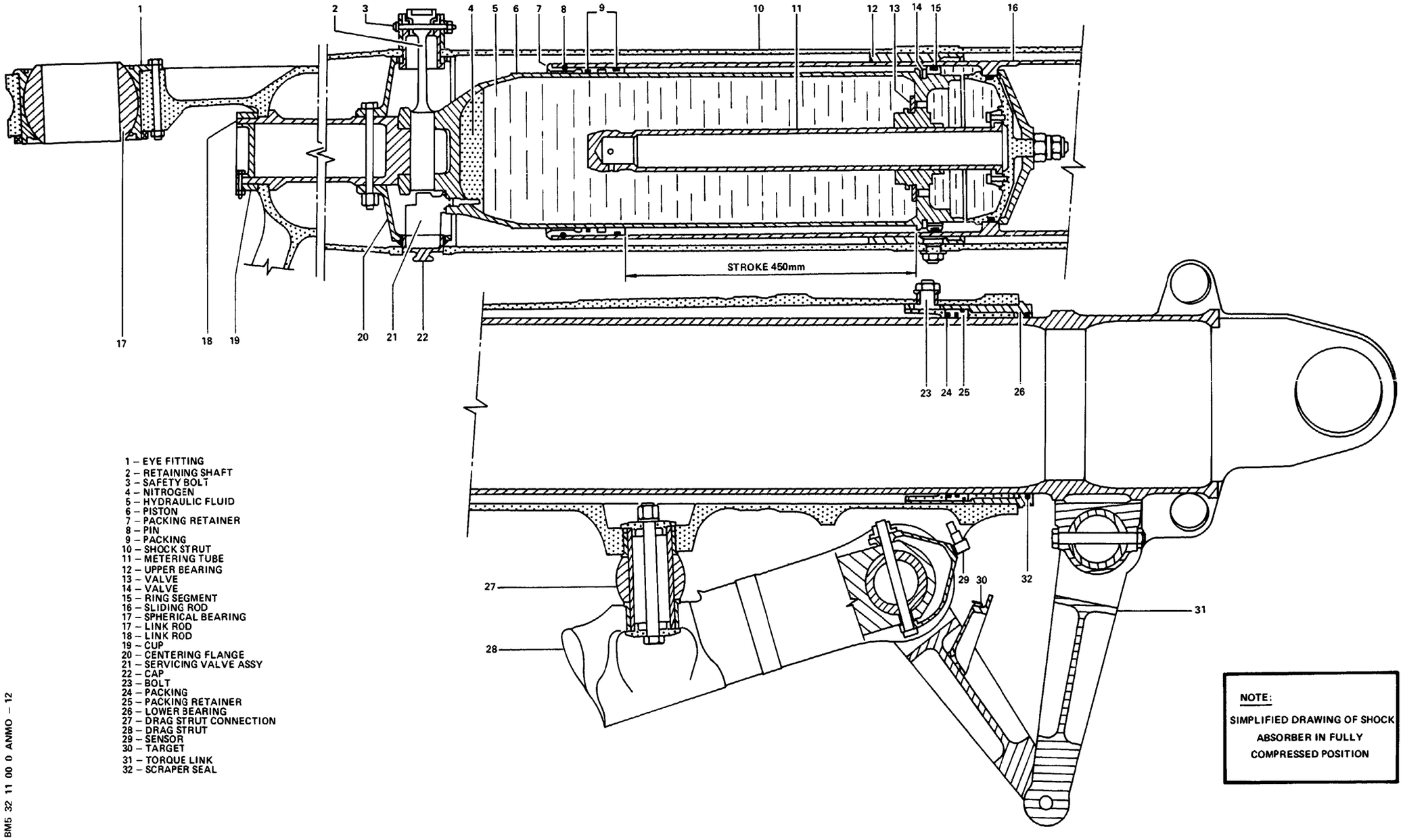

1 – EYE FITTING
2 – RETAINING SHAFT
3 – SAFETY BOLT
4 – NITROGEN
5 – HYDRAULIC FLUID
6 – PISTON
7 – PACKING RETAINER
8 – PIN
9 – PACKING
10 – SHOCK STRUT
11 – METERING TUBE
12 – UPPER BEARING
13 – VALVE
14 – VALVE
15 – RING SEGMENT
16 – SLIDING ROD
17 – SPHERICAL BEARING
17 – LINK ROD
18 – LINK ROD
19 – CUP
20 – CENTERING FLANGE
21 – SERVICING VALVE ASSY
22 – CAP
23 – BOLT
24 – PACKING
25 – PACKING RETAINER
26 – LOWER BEARING
27 – DRAG STRUT CONNECTION
28 – DRAG STRUT
29 – SENSOR
30 – TARGET
31 – TORQUE LINK
32 – SCRAPER SEAL

NOTE:
SIMPLIFIED DRAWING OF SHOCK ABSORBER IN FULLY COMPRESSED POSITION

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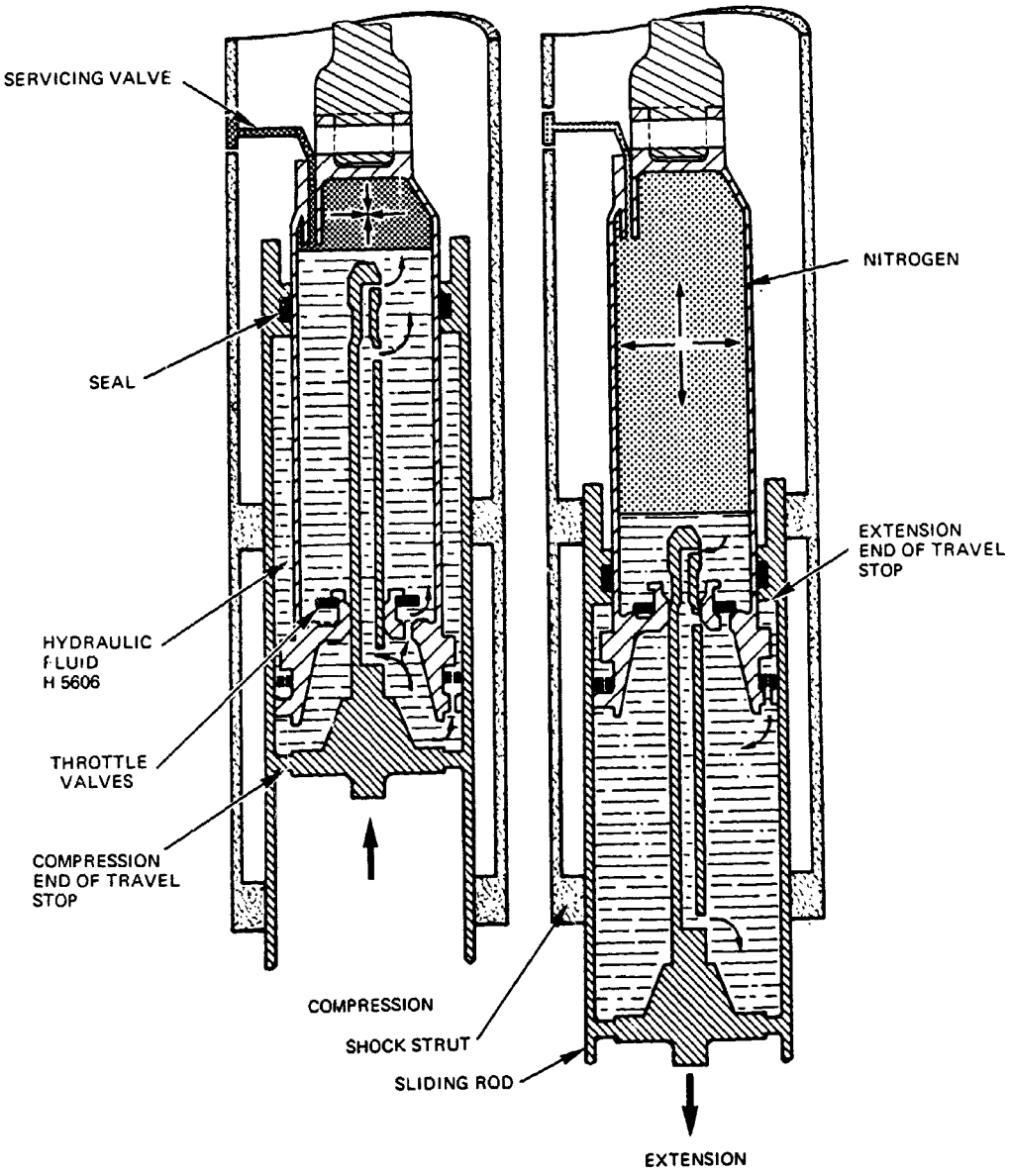
Main Gear Shock Absorber
Figure 011



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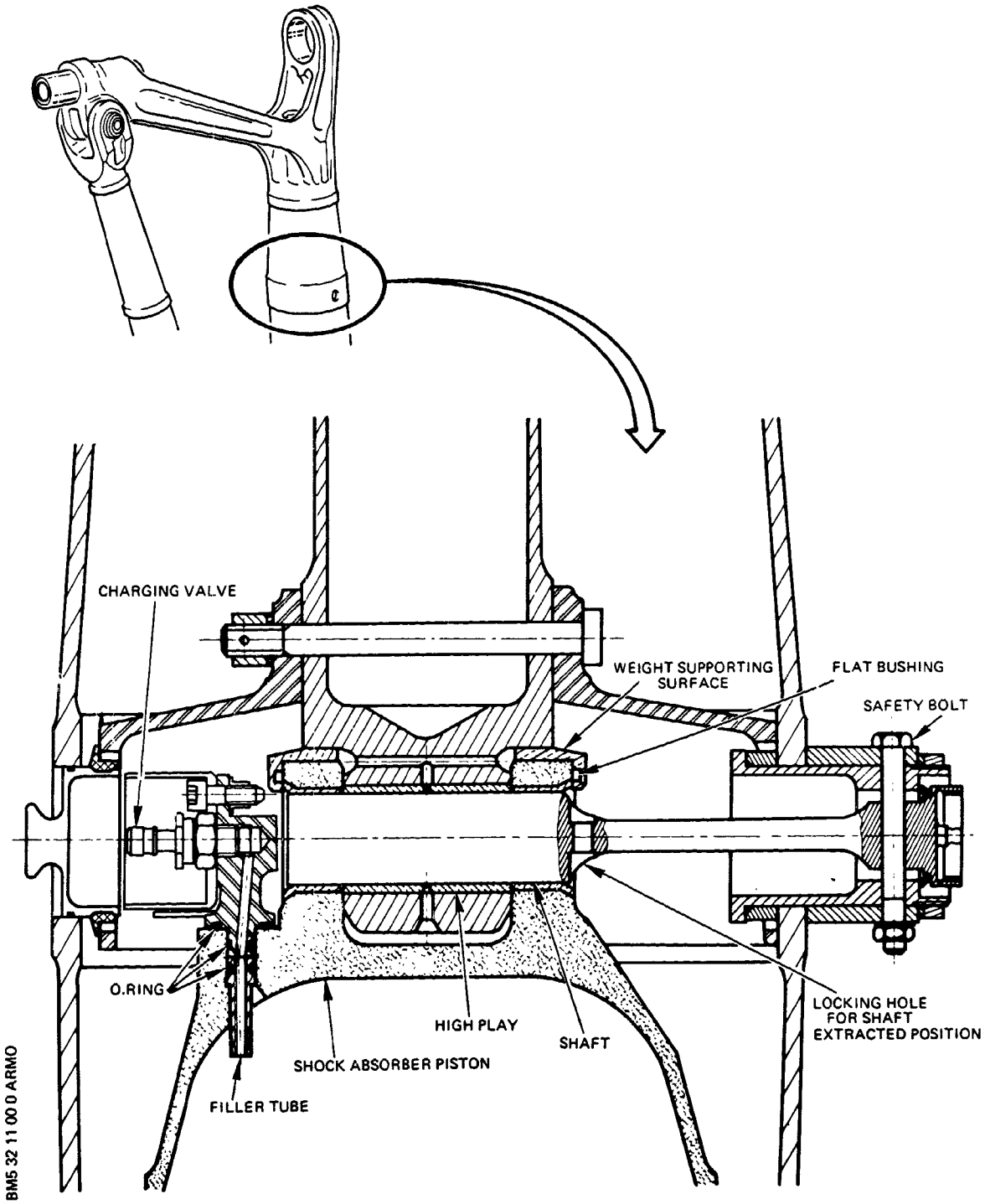
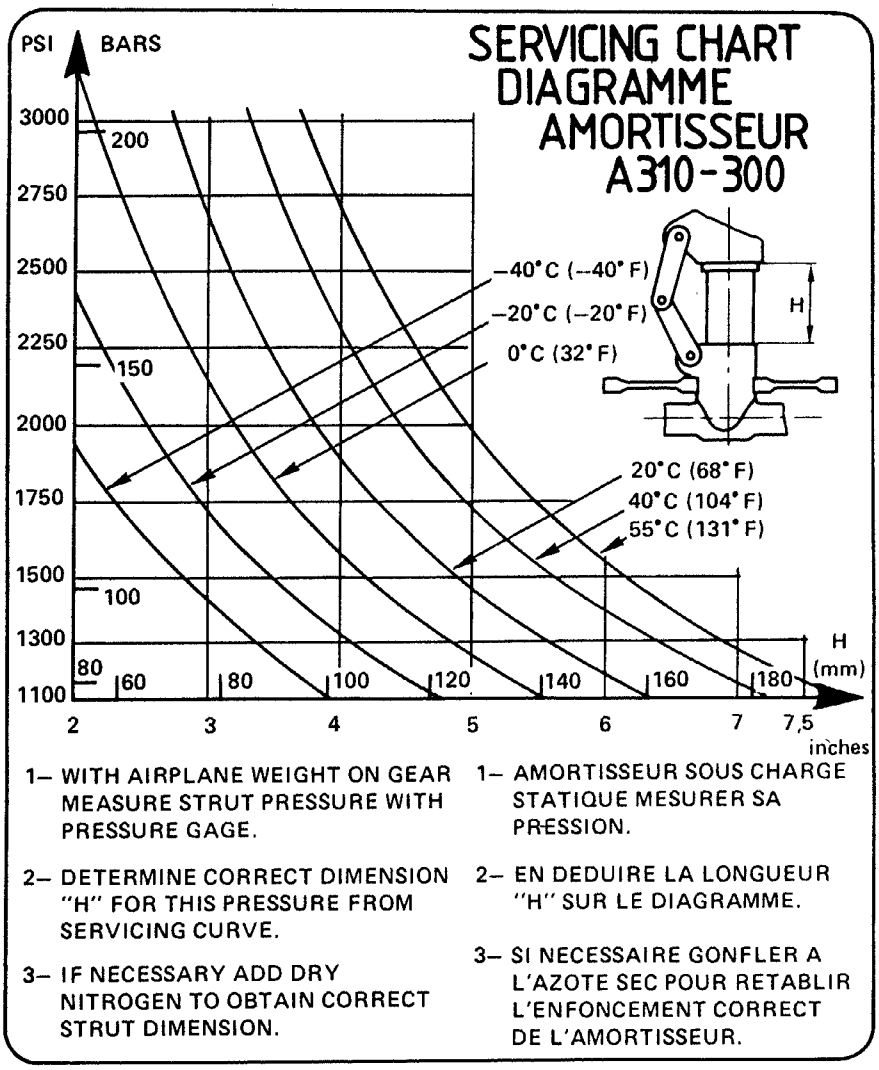
Main Gear Shock Absorber - Schematic
Figure 012



Shock Absorber Connection
Figure 013



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Shock Absorber - Charging Chart
Figure 014

5. Pitch Damper Without Fluid Level Indicator

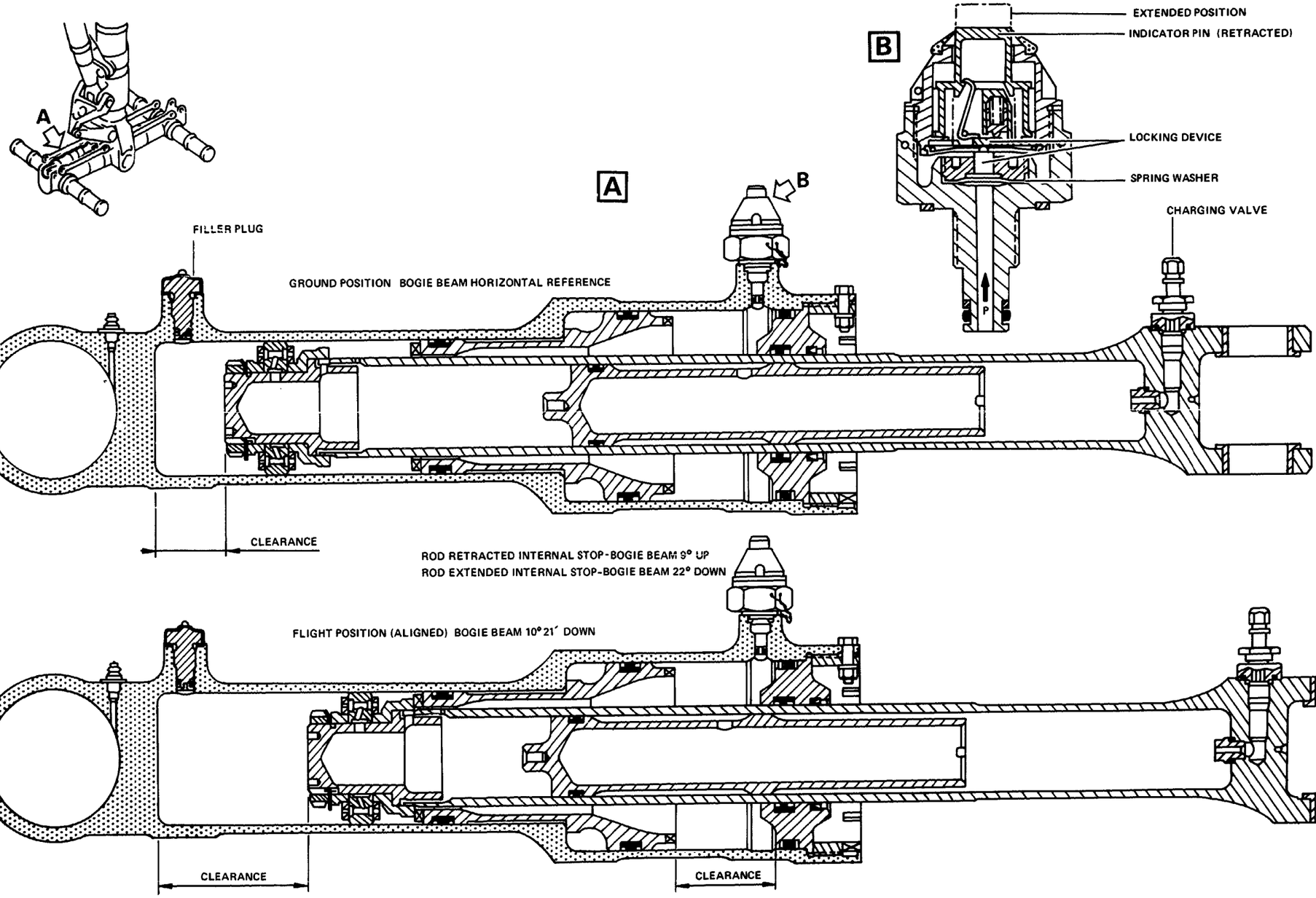
A. General
(1)The pitch damper is of the oleo-pneumatic type with a separator between the hydraulic fluid (FHS) and nitrogen required because of its horizontal position.
(2)The pitch damper is of the double-acting type with load threshold

B. Operation (Ref. Fig. 015)
(1)The bogie beam neutral position (10° pitch-down) in the gear downlocked flight configuration is obtained by the pitch damper which adopts a statically balanced position under the action of pressure in the nitrogen chamber
(2)When the sliding rod moves from the statically balanced position (extension or compression) the hydraulic fluid is forced through the metering holes
(3)The pitch damper is equipped with a nitrogen charging valve, a hydraulic fluid filling valve and a pressure drop indicator which protrudes and remains visible if pressure drops below 35 bars (508 psi)
(4)Nitrogen charging pressure is 100bars approx. (1450 psi)
(Ref. Fig. 016)

6. Pitch Damper With Fluid Level Indicator

A. General
(1)The pitch damper is of the oleo-pneumatic type with a separator between the hydraulic fluid (FHS) and nitrogen required because of its horizontal position.
(2)The pitch damper is of the double-acting type with load threshold

B. Operation (Ref. Fig. 017)
(1)The bogie beam neutral position in the gear downlocked flight configuration is obtained by the pitch damper which adopts a statically balanced position under the action of pressure in the nitrogen chamber
(2)When the sliding rod moves from the statically balanced position (extension or compression) the hydraulic fluid is forced through the metering holes
(3)The pitch damper is equipped with a nitrogen charging valve, a hydraulic fluid filling valve, a pressure drop indicator which protrudes and remains visible (red) if pressure drops below 60 bars (870 psi) and a visual fluid level indicator.
(4)Nitrogen charging pressure is 100bars approx. (1450 psi) Aircraft on jacks.
(Ref. Fig. 018)



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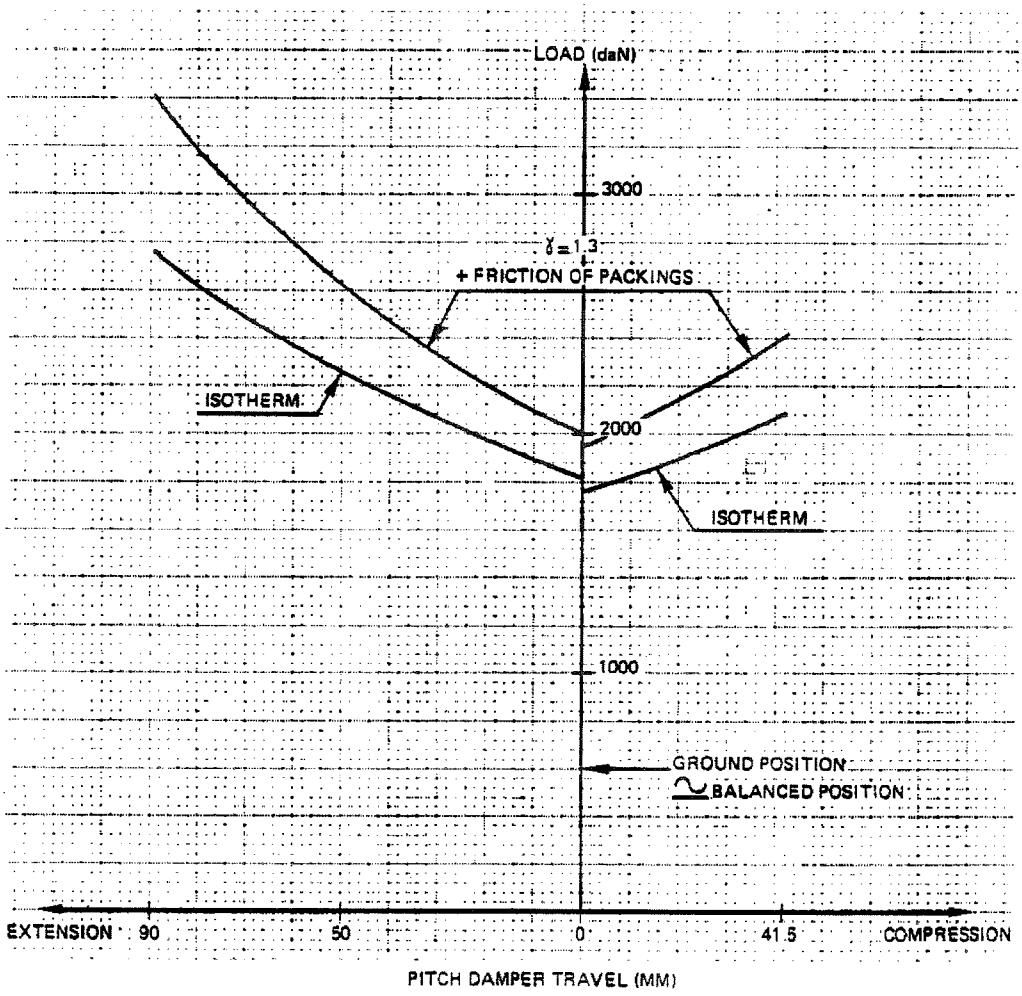
Pitch Damper - Schematic
Figure 015

VOLUME OF FLUID : VH=1390 cm3

COMPRESSED REFERENCE SECTION : S=16.814 cm2

EXTENDED REFERENCE SECTION : S=17.293 cm2



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Pitch Damper Compression Chart
Figure 016

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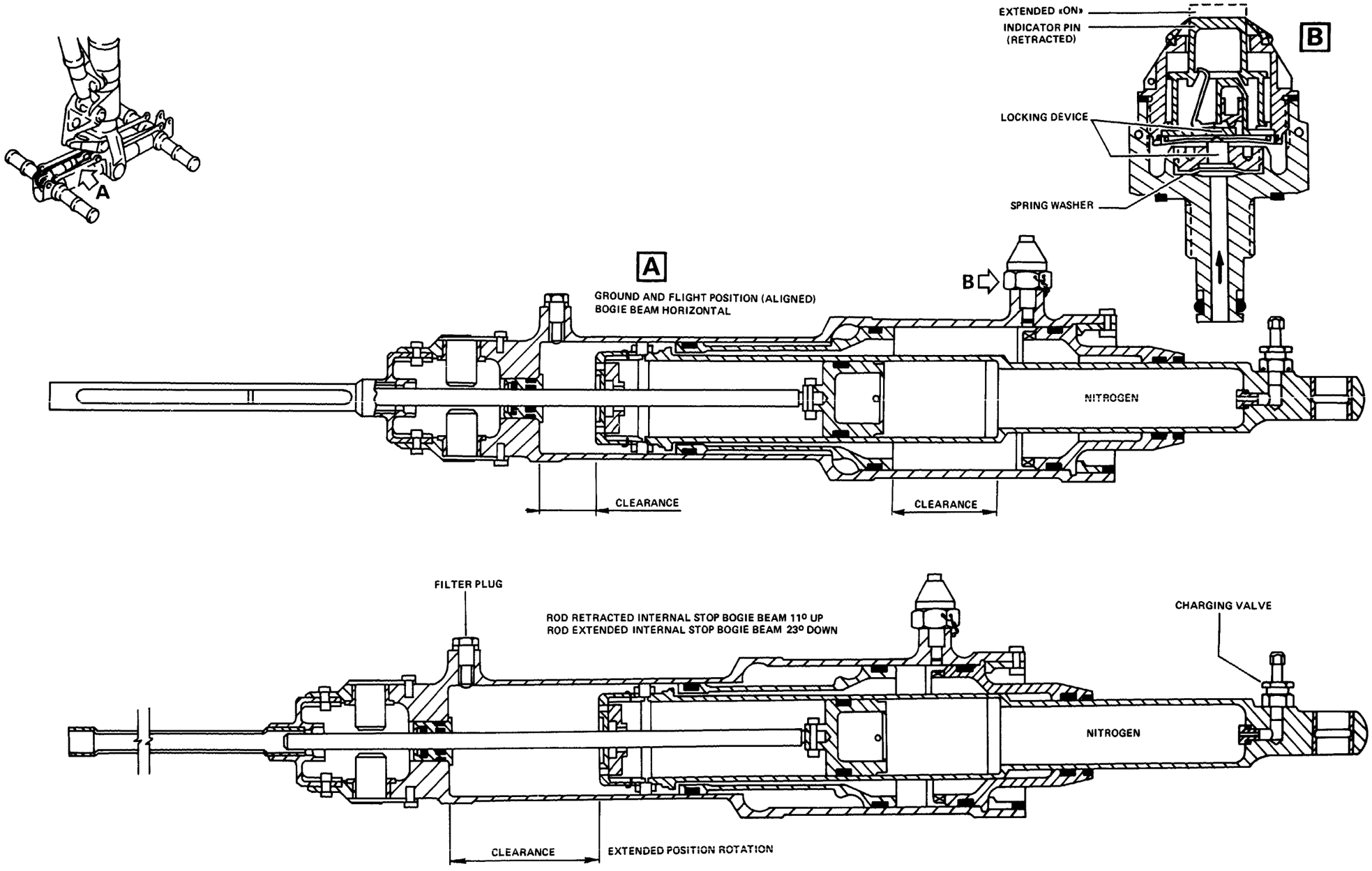

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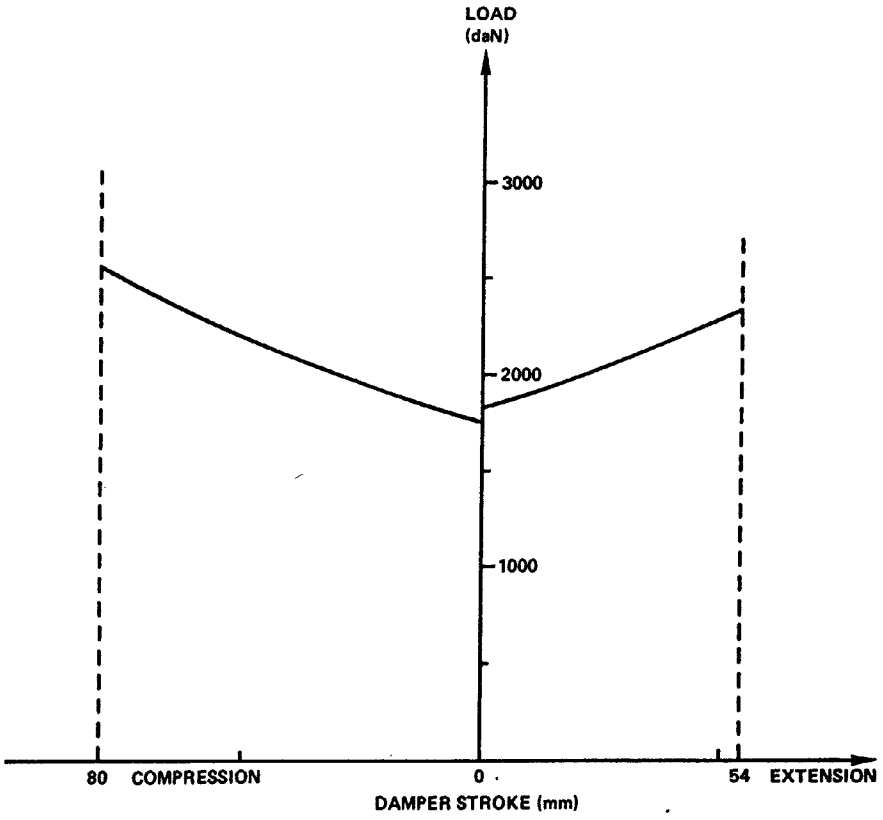
Pitch Damper - Schematic
Figure 017

AIRCRAFT ON JACKS

CHARGING PRESSURE	P = 100 BARS
COMPRESSED REFERENCE SECTION	S = 16,814 CM²
EXTENDED REFERENCE SECTION	S = 17,293 CM²
VOLUME OF FLUID V_1 = 1291 CM³	



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Pitch Damper Compression Chart
Figure 018

WARNING : CHECK THAT LANDING GEAR GROUND SAFETIES INCLUDING WHEEL CHOCKS ARE IN POSITION.

BEFORE APPLYING OR RELIEVING HYDRAULIC SYSTEM PRESSURE, MAKE CERTAIN THAT THE TRAVEL RANGES OF THE CONTROL SURFACES ARE CLEAR.

BEFORE PRESSURIZING HYDRAULIC SYSTEMS, CHECK THAT ALL CONTROLS ARE SET TO CORRESPOND WITH THE ACTUAL POSITION OF THE SERVICES THEY OPERATE.

BEFORE POWER IS SUPPLIED TO THE AIRCRAFT MAKE CERTAIN THAT ELECTRICAL CIRCUITS UPON WHICH WORK IS IN PROGRESS ARE ISOLATED.

BEFORE PRESSURIZING HYDRAULIC SYSTEMS, MAKE CERTAIN THAT HYDRAULIC SYSTEM UNDER MAINTENANCE HAS BEEN ISOLATED.

1. Equipment and Materials

	ITEM	DESIGNATION
R	A. MLGT40	Trolley - Main Gear Handling
	B. 98A32101501000	Guiding Tool - Trunnion
	C. 98A32101508000	Clamp - Hoisting
	D.	Minilift
	E. 98A32104154000	Hook Spanner - Nut, Main Gear Leg Pick Up
	F. 98A32104170000	Wrench
	G. 98A32104173000	Extractor
	H. F21974	Stretching Fixture
	J. 98A32101502000	Hoisting Equipment - MLG Actuating Cylinder
	K. F47529	Extractor
	L. H21815	Handling Fixture
	M. H21901	Hoisting Device
	N.	Access Platform (2,60 m to 3,60 m) (8 ft. 7 in. to 11 ft. 10 in.)
	P.	Safety Barriers
	Q.	Hydraulic Fluid Container
	R.	Blanking Caps/Plugs
	S.	Warning Notices
	T. Material No. 04-004	Common Greases (Ref. 20-31-00)
	U. Material No. 04-022	Common Greases (Ref. 20-31-00)
	V. Material No. 05-002	Special Materials (Ref. 20-31-00)
	W. Material No. 05-047	Special Materials (Ref. 20-31-00)
	X. Material No. 09-001	Sealants (Ref. 20-31-00)
	Y. Material No. 09-002	Sealants (Ref. 20-31-00)
	Z. Material No. 09-039	Sealants (Ref. 20-31-00)
	AA.Material No. 09-024	Sealants (Ref. 20-31-00)
	AB.Material No. 11-002	Cleaning Agents (Ref. 20-31-00)
	AC.Material No. 11-004A	Cleaning Agents (Ref. 20-31-00)
	Referenced Procedures	
	- 07-11-00, P. Block 1	Jacking for Aircraft Maintenance Operations
	- 12-12-29, P. Block 1	Hydraulics

ITEM	DESIGNATION
- 12-14-32, P. Block 1	Landing Gear Inflating and Charging
- 12-22-32, P. Block 1	Landing Gear Replenishing
- 29-10-00, P. Block 301	Main Hydraulic Power - Pressurization/Depressurization
- 29-14-00, P. Block 301	Hydraulic Reservoir Pressurizing System
- 32-12-11, P. Block 301	Main Gear Main Door - (Ground Door(s) Opening)
- 32-11-13, P. Block 601	Main Gear Shock Absorber
- 32-12-15, P. Block 401	Main Gear Cylinder Door
- 32-31-00, P. Block 501	Normal Extension and Retraction
- 32-33-00, P. Block 501	Free Fall Extension
- 32-42-00, P. Block 301	Normal Braking
- 32-42-00, P. Block 501	Normal Braking
- 32-42-27, P. Block 401	Brake Unit
- 32-42-57, P. Block 401	MLG Wheel Tachometer
- 32-43-00, P. Block 301	Alternate Braking with Anti Skid
- 32-43-00, P. Block 501	Alternate Braking with Anti Skid
- 32-44-00, P. Block 501	Alternate Braking without Anti Skid

2. Procedure
(Ref. Fig. 401)

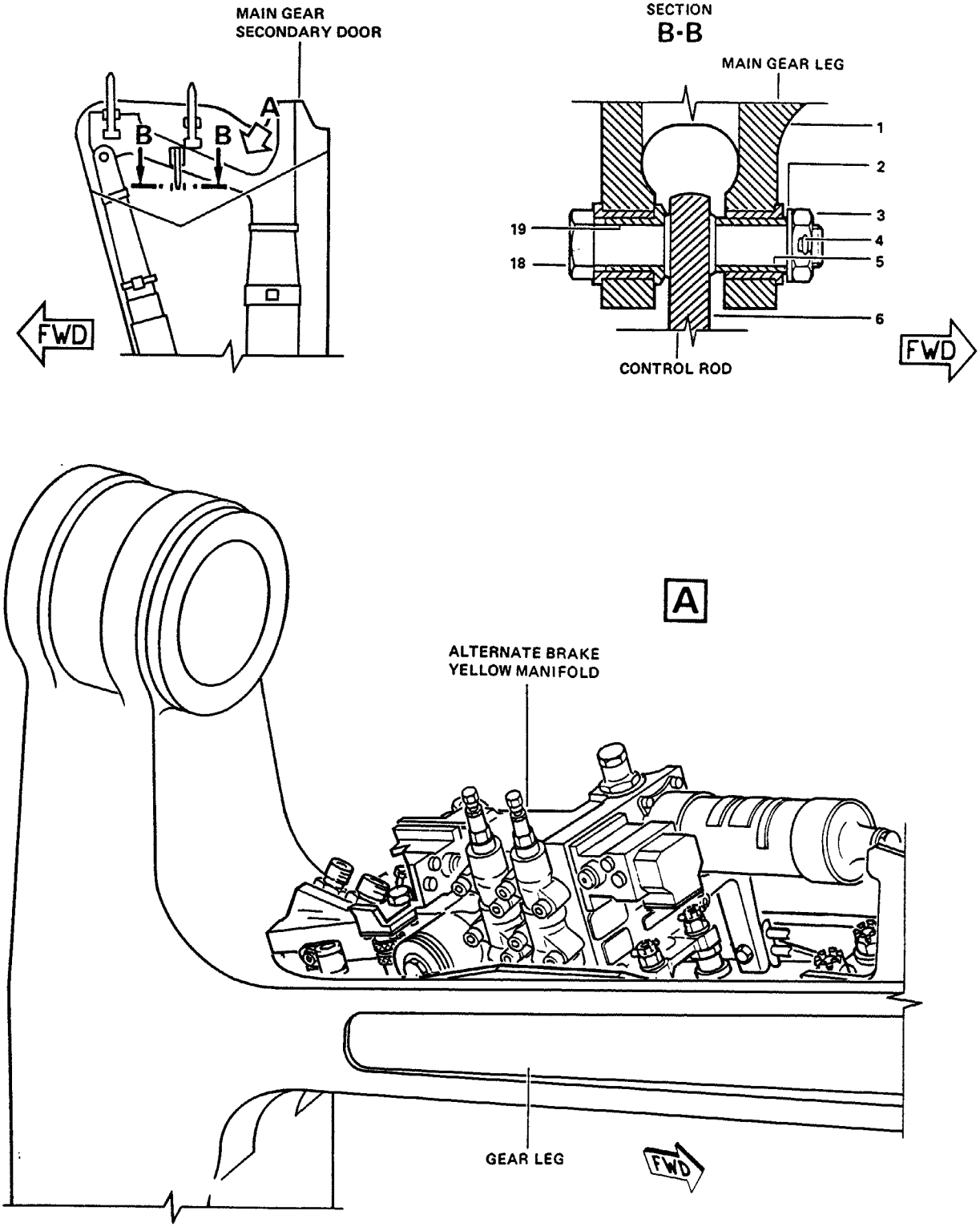
A. Job Set-Up
(1)On panel 4VU
- make certain that landing gear control lever is in **DOWN** position and prohibit its operation by displaying a warning notice.

(2)Between First Officer's and Third Occupant's seats
- make certain that landing gear Free Fall extension control handle is in Normal position.

(3)Position access platforms.
(4)Position safety barriers prohibiting access to gear door travel ranges.
WARNING : MAKE CERTAIN THAT THE DOOR TRAVEL RANGES ARE CLEAR.
(5)Open main gear doors (Ref. 32-12-11, P. Block 301).
WARNING : WHEN DOORS ARE OPEN MAKE CERTAIN THAT SAFETY COLLARS ARE POSITIONED ON DOOR ACTUATING CYLINDERS.
(6)Depressurize Green hydraulic system (Ref. 29-10-00, P. Block 301) and prohibit its operation by displaying a warning notice.
- on Green hydraulic system ground connectors
- on panel 427VU to prohibit operation of Green electric pumps (**ELEC PUMPS** pushbutton switch).

(7)Depressurize Yellow hydraulic system (Ref. 29-10-00, P. Block 301) and prohibit its pressurization by displaying a warning notice.
- on Yellow hydraulic system ground connectors
- on panel 427VU to prohibit energization of Yellow power transfer unit (right **PTU** pushbutton switch).

(8)Depressurize Green and Yellow hydraulic reservoirs (Ref. 29-14-00, P. Block 301) and prohibit their pressurization by displaying a warning notice
- on panel 429VU to prohibit APU starting



Main Gear Leg
Figure 401

R

- on reservoir pressurization connector.

(9)Open, safety and tag the following circuit breakers :

	PANEL	SERVICE	IDENT.	LOCATION
	133VU	HYDRAULIC/L/G PROX DET/& RELAYS SYS 2/FLT/ GND	1GB	331/V52
R	133VU	HYDRAULIC/L/G PROX DET/& RELAYS SYS 1/ RELAYS &/RETRACT/CTL	2GB	332/U51
	133VU	HYDRAULIC/L/G PROX DET/& RELAYS SYS 1/ GEAR DN &/CTR PNL/POS IND	3GB	332/U53
	133VU	HYDRAULIC/L/G PROX DET/& RELAYS SYS 2/ GEAR DOWN &/OVHD/PNL/POS IND	83GB	331/V51
	WARNING : PRIOR TO OPENING CIRCUIT BREAKER 119GB LOCATED ON PANEL 133VU, TAKE THE APPROPRIATE SAFETY MEASURES (REF. 32-00-00, P. BLOCK 501).			
	133VU	HYDRAULIC/L/G PROX DET/& RELAYS/SYS 1/FLT GND	119GB	332/U52
	133VU	HYDRAULIC/BRAKES/FAN/CTL	17GS	331/V53
	133VU	HYDRAULIC/TIRE/PRESS	1GV	333/T54
	133VU	HYDRAULIC/BRAKES/TEMP/WARN	17GW	331/V54
	133VU	HYDRAULIC/BRAKES/TEMP/DET/UNIT	1GW	335/R58
	133VU	HYDRAULIC/BRAKES SYSTEM/CTL UNIT/CTL & WARN	5GG	333/T56
	133VU	HYDRAULIC/BRAKES SYSTEM/CTL UNIT LAND RECOVERY SUPPLY	98GG	333/T55
	133VU	HYDRAULIC/BRAKES SYSTEM/CTL UNIT/NORM	4GG	331/V55
	133VU	HYDRAULIC/BRAKES SYSTEM/CTL UNIT/SUPPLY	42GG	331/V56
	133VU	HYDRAULIC/BRAKES SYSTEM/CTL UNIT/NORM	2GG	332/U55
	133VU	HYDRAULIC/BRAKES SYSTEM/CTL UNIT/SUPPLY	41GG	332/U56
	133VU	HYDRAULIC/AUTO BRK	95GG	335/R57
	133VU	HYDRAULIC/ELEC/PUMPS/WARN	4GE	331/V60
	133VU	HYDRAULIC/ACCU PRESS/CTL &/CARGO DOOR/ PUMP	7GX	333/T51

(10)Jack up aircraft until wheels are clear of ground (Ref. 07-11-00, P. Block 1).

(11)Remove the four wheels of the landing gear involved (Ref. 12-37-32, P. Block 1).

(12)Remove brake units from landing gear concerned (Ref. 32-42-27, P. Block 401).

(13)Remove wheel tachometers (Ref. 32-42-57, P. Block 401).

(14)Disconnect secondary door control rod (6), at its attachment point on main gear leg (1).

(15)Remove cylinder door (Ref. 32-12-15, P. Block 401).

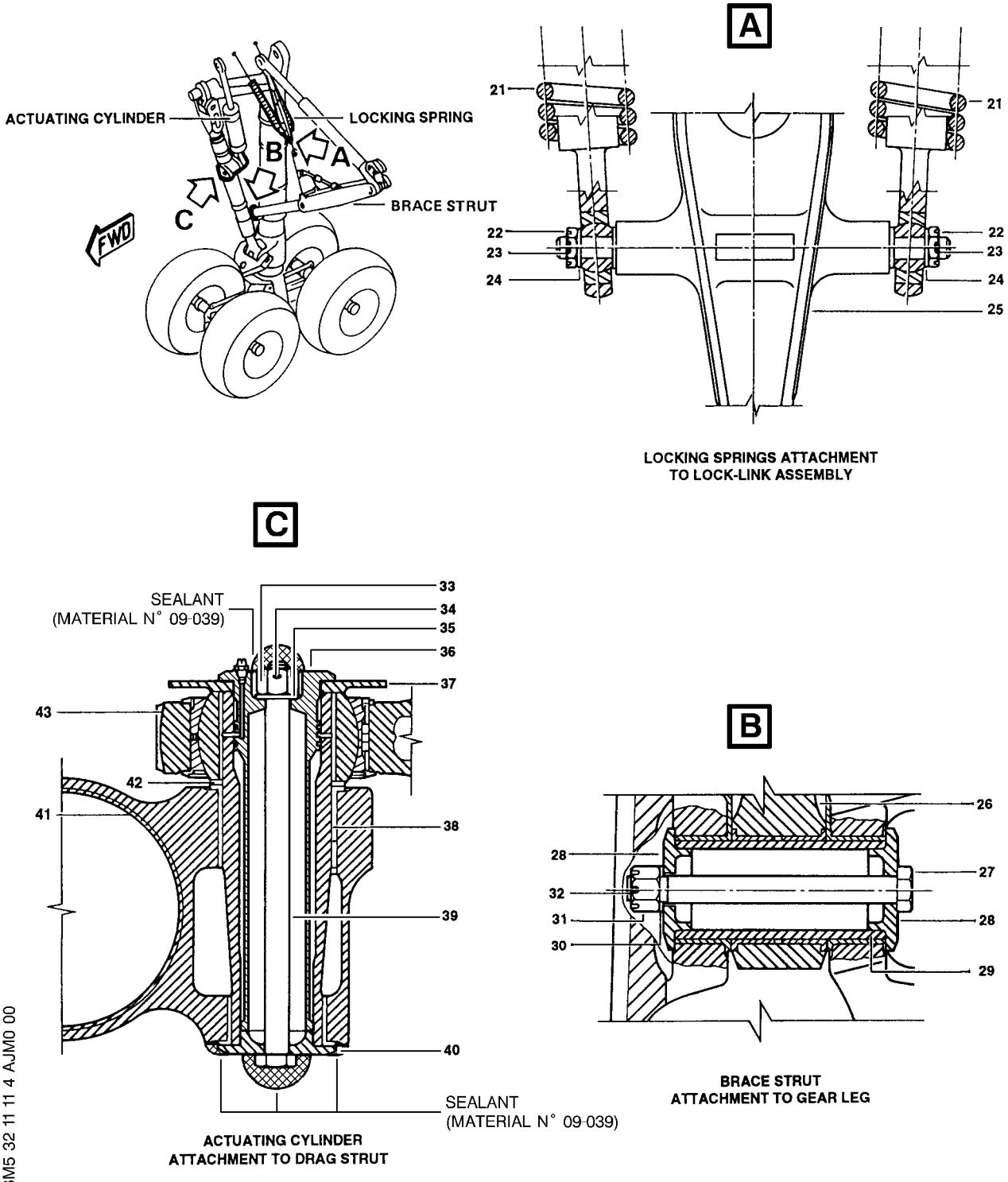
(a)Remove and discard cotter pin (4), remove nut (3) and retain washer (2).

(b)Remove spacer (5), bolt (18), disengage control rod (6) and remove bushing (19).

(16)Position hydraulic fluid container.

B. Removal
(Ref. Fig. 401)
(Ref. Fig. 402)
(Ref. Fig. 403)
(1)Disconnect aircraft systems at main gear-to-structure attachment point.
(a)Identify positions of hydraulic lines, disconnect lines and cap open line ends.
(b)Identify positions of electric cables, disconnect cables and cap connectors.

(2)Disconnect system connections between actuating cylinder and main gear leg.
(3)Disconnect actuating cylinder (43) from drag strut (41)
(a)Mark and disconnect hydraulic lines at their connections on actuating cylinder.
Blank open line ends and unions.
(b)Position hoisting device H21901 on actuating cylinder (43).
(c)Attach actuating cylinder hoisting equipment 98A32101502000 to structure.
(d)Position minilift.
(e)Remove sealant around the head of bolt (39), end cap (40) and nut (33).
(f)Remove and discard cotter pin (34).
(g)Remove nut (33).
(h)Retain washer (35).
(j)Remove bolt (39) and end cap (40).
(k)Remove lubrication insert (36) and end cap (37).
(l)Disengage actuating cylinder eye end fitting (43) from trunnion (38).
(m)Retain the washer (42).
(n)Temporarily attach all attaching parts on structure.
(4)Disconnect locking springs (21) from attachments on lock link assembly (25).
(a)Install stretching fixture F21974.
(b)Remove and discard the two cotter pins (23).
(c)Remove the two nuts (22) and washers (24).
(d)Disengage locking springs (21) from lock link assembly (25).
(e)Temporarily attach springs (21) to structure.
(5)Disconnect brace strut (26) from main gear leg.
(a)Install hoisting clamp 98A32101508000 on brace strut.
(b)Position minilift.
(c)Install brace strut handling fixture H21815.
NOTE : Support weight of brace strut to remove attaching parts.
(d)Remove cotter pin (32) and nut (31).
(e)Retain washer (30).
(f)Extract bolt (27).
(g)Remove end caps (28) and remove shaft (29) using extractor F47529.
(h)Disengage brace strut end fitting.
(j)Fold brace strut and temporarily attach lower arm end fitting to upper arm.
- Temporarily install attaching hardware on brace strut end fitting and protect end fitting against possible damage.
(6)At bearings, remove rubber coating from parts to be removed using a



LOCKING SPRINGS ATTACHMENT
TO LOCK-LINK ASSEMBLY

ACTUATING CYLINDER
ATTACHMENT TO DRAG STRUT

BRACE STRUT
ATTACHMENT TO GEAR LEG

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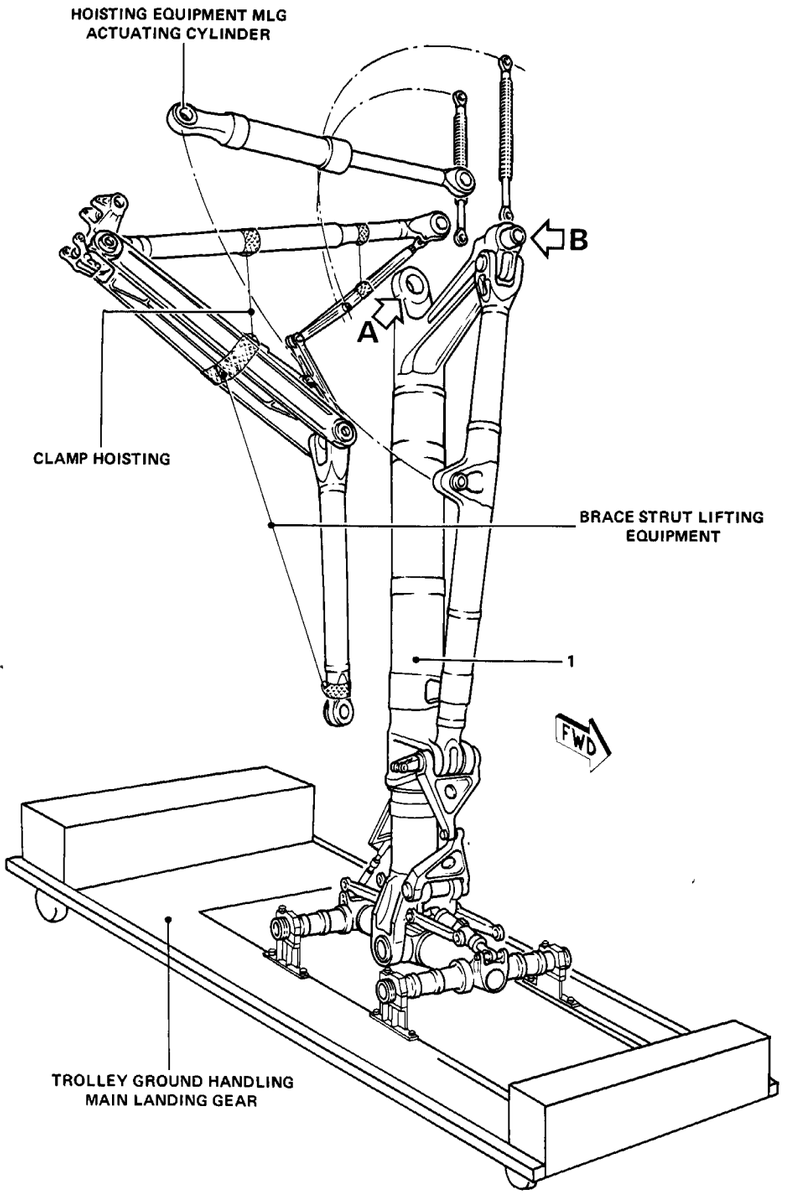
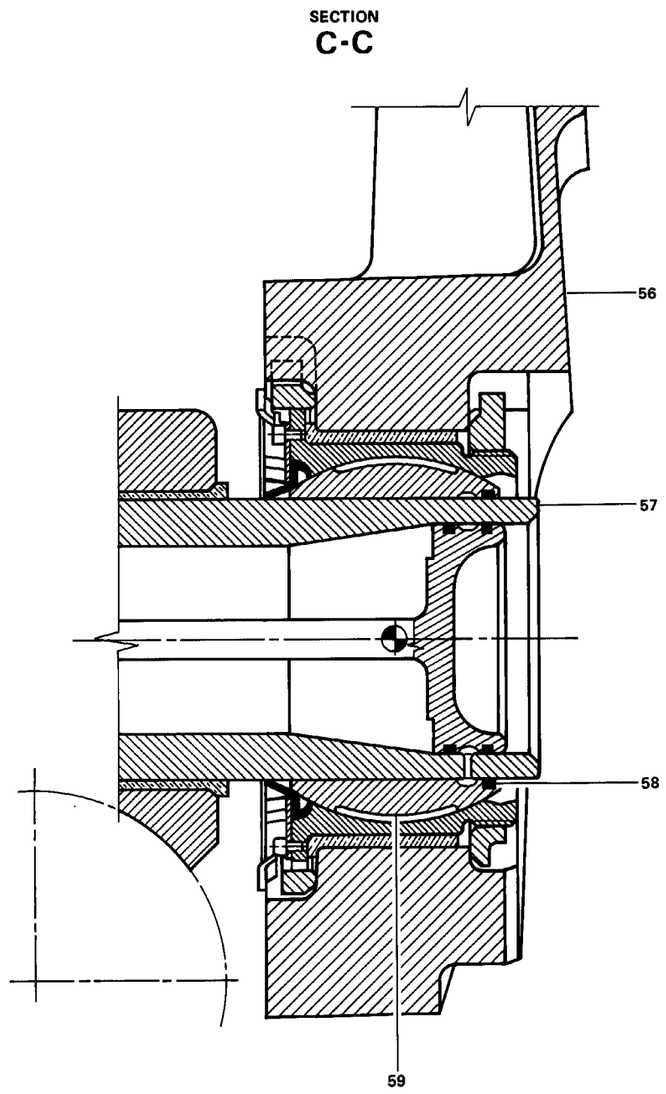
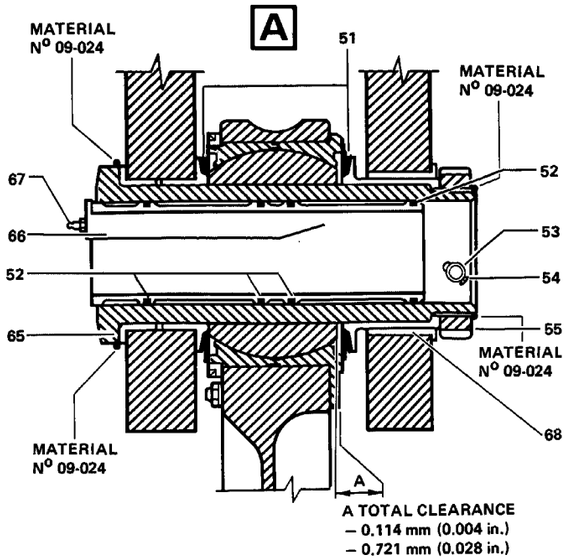
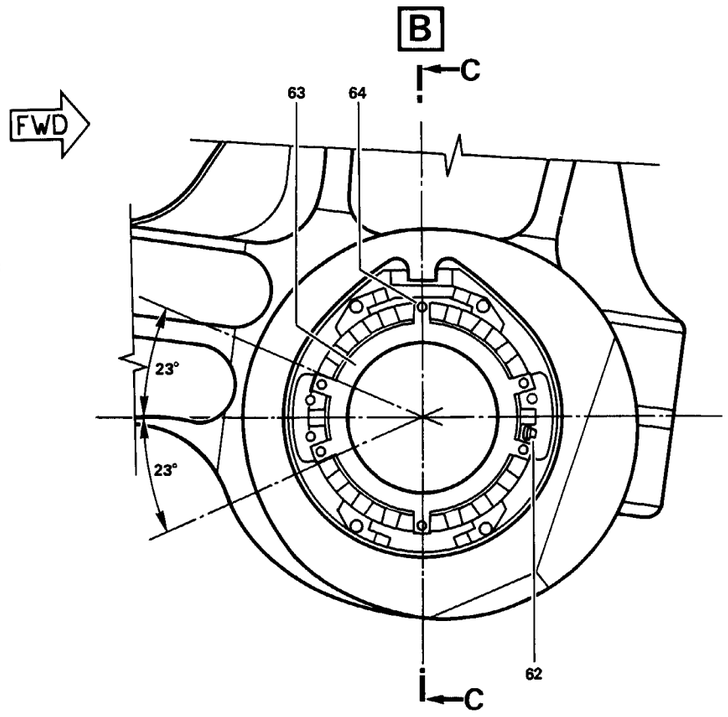
Main Gear Leg Accessory Equipment Attachment
Figure 402









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Main Gear Leg
Figure 403

spatula taking care not to damage protective finish.
(7)Mark parts coated with Sealant (Material No. 09-001 or No. 09-002).
(8)Gradually depressurize shock absorber leaving a residual pressure of 5 bars (72.52 psi) (Ref. 32-11-13, P. Block 601).
(9)Position main gear handling trolley and secure to leg.
WARNING : BEFORE DISCONNECTING MAIN GEAR LEG FROM WING, MAKE CERTAIN THAT LEG IS CORRECTLY SECURED TO HANDLING TROLLEY.
NOTE : Conditions facilitating removal :
- After removal of nut (55) adjust height (Z) of landing gear to enable removal of hinge shaft (65).
- Rotate hinge shaft (65) to locate position at which hinge shaft (65) is subjected to least load.
- Prior to removing hinge shaft (65) : install support strut and collar on shock absorber (handling trolley).
- When attaching support strut to torque link/pitch damper attachment, take care not to overtighten screwjack.

(10)Disconnect main gear leg (1) from wing.
(a)Remove and discard cotter pin (54) and drive out pin (53).
(b)Remove nut (55) using hook spanner 98A32104154000.
(c)Cut and remove lockwire and remove the two half-seals (51).
(d)Remove hinge shaft (65) equipped with lubrication insert (66) using extractor 98A32104173000.
Remove lubrication insert (66) and check condition of seals (52).
Replace seals (52) if necessary.
(e)Remove grease nipples (67).
(f)Remove grease nipple (62).
(g)Remove screws (64) and half-seals (63).
(h)Maneuver handling trolley to free shock strut eye end fitting from strutural clevis.
Angular displacement required is approximately 23°.
(j)Disengage trunnion (57) from spherical bearing (59) by moving handling trolley towards rear of the aircraft.
(k)Remove and discard grease seal (58).

C. Preparation of Replacement Component
(1)Depreserve replacement landing gear leg by removing external protective coverings.
R (2)Remove axle protective sleeve and spacer from landing gear leg and
R install then on the replacement landing gear leg (Ref. 32-42-27
R P. Block 401 Para. 5).
R (3)Install replacement landing gear leg on handling trolley (after having withdrawn removed gear leg).
R (4)On removed gear leg remove :
- safety valves (Ref. 32-42-36, P. Block 401).
- servo valve (Ref. 32-42-48, P. Block 401).
R (5)On replacement gear leg install :
- safety valves (Ref. 32-42-36, P. Block 401).
- servo valve (Ref. 32-42-48, P. Block 401).
R (6)Clean all parts for installation with Cleaning Agent (Material No. 11-002) and dry with filtered compressed air.
NOTE : Clean the attachment hardware with Cleaning Agent

(Material No. 11-004A) and dry with filtered compressed air. Apply a light coat of Anti-corrosion Compound (Material No. 05-047) to the threads of all nuts, screws, bolts and pins.

R (7)Check condition of all parts to be installed ; replace any damaged parts.

R (8)Position landing gear leg at its attach fittings.

D. Installation

(1)Using the various locating devices on landing gear leg handling trolley, lift and position landing gear leg for engagement of trunnion. Install grease seal (58) on structural spherical bearing (59).

(2)Install guiding tool on trunnion (57).

CAUTION : SPHERICAL BEARING (59) MUST BE POSITIONED WITH GREASE SEAL (58) AT THE FORWARD SIDE AND BORE GROOVE POSITIONED IN ORDER TO COINCIDE WITH EXISTING GREASE HOLES IN TRUNNION.

(3)Position spherical bearing (59) to facilitate insertion of trunnion (57).

(4)Smear trunnion (57) and spherical bearing (59) contact surfaces with Grease (Material No. 04-022).

(5)Maneuver handling trolley so that trunnion (57) enters spherical bearing (59).

(6)Remove guiding tool and push home trunnion (57) in spherical bearing (59).

NOTE : Make certain that guiding tool is removed as soon as trunnion (57) is entered into spherical bearing (59).

(7)Install and safety half-seals (63) with screws (64).

(8)Blank greaseway holes using grease nipple (62).

(9)Push home trunnion in spherical bearing (59).

(10)Maneuver handling trolley to guide shock strut eye end fitting into structural clevis and align bores.

(11)Install hinge shaft (65).

(a)Smear hinge shaft bearing surfaces with Grease (Material No. 04-022).

(b)Install hinge shaft (65) with lubrication insert (66).

(c)Smear thread of hinge shaft (65) with Grease (Material No. 04-022).

(d)Install nut (55) using hook spanner 98A32104154000. Tighten nut (55) to between 6.8 and 13.6 m.daN (50 and 100 lbf.ft.) taking care to line up shear pin holes in nut (55) and hinge shaft (65).

NOTE : If hinge shaft (65) is not drilled for installation of two pins (53), remove hinge shaft and sleeve (68), assemble hinge shaft, sleeve and nut (55) on a bench and TORQUE nut to between 6.8 and 13.6 m.daN (50 and 100 lbf.ft.); using nut as a guide, drill two holes 4.85 mm diameter through hinge shaft in accessible position for subsequent installation on aircraft, (several holes can be drilled in hinge shaft (65) provided that a minimum separation of thirty degrees is respected between two adjacent holes), deburr drilled holes. After drilling of holes, protect them with Anti-corrosion Compound (Material No. 05-002).

(e)Check that clearance A (Ref. Fig. 403) is between 0.114 mm (0.004 in.) and 0.721 mm (0.028 in.).

(f)Smear the two pins (53) with Sealant (Material No. 09-024).

(g)Install two pins (53) and safety with cotter pins (54).

(h)Clean the surfaces smeared with Grease (Material No. 04-022). Apply a

bead of Sealant (Material No. 09-024) between the splines of hinge shaft (65) and nut (55) and between hinge shaft bearing surfaces and hinge shaft (65).

(12)Install the two half-seals (51) on either side of spherical bearing and wirelock.

(13)Coat with Sealant (Material No. 09-001 or No. 09-002) the zones identified in the removal operation.

(14)Install grease nipples (67).

(15)Remove landing gear leg handling trolley.

(16)Connect brace strut (26) to main gear leg.

(a)Using handling fixture H21815, position brace strut (26) so as to align shock strut, brace strut (26) and drag strut (41).

(b)Install shaft (29) and end caps (28).

(c)Install bolt (27) with washer (30).

(d)Install nut (31) and TORQUE to between 20.5 and 24 m.daN (151.2 and 177 lbf.ft.). Safety nut (31) with cotter pin (32).

(e)Remove handling fixture H21815.

(17)Connect locking springs (21) to lock link assembly (25).

(a)Position locking springs (21).

(b)Position washers (24).

(c)Install nuts (22) and TORQUE to between 2.5 and 4 m.daN (18 and 29 lbf.ft.). Safety nuts (22) with cotter pins (23).

(d)Remove stretching fixture F21974.

(18)Connect actuating cylinder (43) to drag strut (41). (Ref. Fig. 402).

(a)Install the washer (42) on trunnion (38).

(b)Position actuating cylinder (43) eye end fitting on trunnion (38).

(c)Install end cap (37).

(d)Install end cap (40) and bolt (39).

(e)Install lubrication insert (36).

NOTE : Make sure that the tenons of the lubrication insert (36) are correctly engaged in the notches of the end cap (40).

(f)Install washer (35).

(g)Install nut (33) and TORQUE to between 12.5 and 16.5 m.daN (92.20 and 121.77 lbf.ft).

(h)Install cotter pin (34).

(j)Apply sealant (Material No. 09-039) around the head of the bolt (39), end cap (40) and nut (33).

(k)Remove minilift.

(l)Remove actuating cylinder hoisting equipment 98A32101502000 from structure.

(m)Remove hoisting device H21901 from actuating cylinder (43).

(n)One at a time, remove blanking plugs/caps from hydraulic lines/unions and connect hydraulic lines.

(19)Connect secondary door control rod (6) at its attachment on main gear leg (1).

Grease bushing (19) bore, spacer (5) and bolt (18) with Grease (Material No. 04-004) or (Material No. 04-022).

NOTE : Do not mix Material No. 04-004 with Material No. 04-022. You can use Material No. 04-022 as an alternative to Material No. 04-004. Clean and degrease the parts before you use Material No. 04-022.

(a)Install bushing (19) and position rod (6).
(b)Install bolt (18), spacer (5) and washer (2).
NOTE : Bolt (18) shall be installed with threaded portion facing forward.
(c)Install nut (3), TORQUE nut (3) to between 3.5 and 4.1 m.daN (25.81 and 30.28 lbf. ft.) and safety with cotter pin (4).
(20)Connect aircraft system connections at leg and actuating cylinder-to-gear leg attachments.
(21)Connect system connections at gear leg-to-structure attachments.
(a)Remove blanking plugs/caps and connect hydraulic lines in accordance with marking made during removal.
(b)Remove protective caps from electrical connectors and connect in accordance with marking made during removal.

(22)Install cylinder door (Ref. 32-12-15, P. Block 401).
(23)Install wheel tachometers (Ref. 32-42-57, P. Block 401).
(24)Install brake units (Ref. 32-42-27, P. Block 401).
(25)Install wheels (Ref. 12-37-32, P. Block 1).
(26)Charge pitch damper (Ref. 12-14-32, P. Block 1).
(27)Charge shock absorber (Ref. 32-11-13, P. Block 601).
(28)Bleed Normal braking system (Ref. 32-42-00, P. Block 301).
(29)Bleed Alternate braking system (Ref. 32-43-00, P. Block 301).
(30)Carry out lubrication operations (Ref. 12-22-32, P. Block 1).

E. Tests
(1)Carry out a functional test of Normal landing gear extension and retraction (Ref. 32-31-00, P. Block 501).
CAUTION : BEFORE TEST, SLOWLY RETRACT LANDING GEAR BY USING LOW HYDRAULIC FLOW RATE AND THEREBY CHECK CLEARANCE BETWEEN LANDING GEAR AND ADJACENT STRUCTURE, AND CHECK LANDING GEAR FOR EVIDENCE OF BINDING OR TENDENCY TO HANG UP.
NOTE : Carefully check all the various components for leakage at initial pressurization and upon completion of tests.
(2)Carry out a system test of gear retraction inhibition with left and right main gear shock absorbers compressed and bogie beam not aligned. (Ref. 32-31-00, P. Block 501 para.(4) and (6)).
(3)Carry out a functional test of landing gear Free Fall extension (Ref. 32-33-00, P. Block 501).
(4)Carry out a Normal braking operational test (Ref P. Block 501).
R (5)Carry out test of braking upon main gear touch-down (Ref. 32-42-00,
R P. Block 501, Para. 4. System Test, step (7)).
(6)Carry out an operational test of alternate braking with and without anti-skid (Ref. 32-43-00, P. Block 501) (Ref. 32-44-00, P. Block 501).

F. Close-Up
(1)Remove hydraulic fluid container.
(2)Make certain that working area is clean and clear of tools and miscellaneous items of equipment.
WARNING : MAKE CERTAIN THAT AREA UNDER AIRCRAFT IS CLEAR.
(3)Lower the aircraft onto its wheels (Ref. 07-11-00, P. Block 1).
(4)Remove safety clips and tags and close circuit breakers 4GE, 7GX

- BRAKES : 17GS, 1GV, 17GW, 1GW, 5GG, 98GG, 4GG, 42GG, 2GG, 41GG, 95GG on panel 133VU
- L/G GEAR PROX DET : 83GB, 1GB, 2GB, 119GB, 3GB on panel 133VU

WARNING : AFTER CLOSING CIRCUIT BREAKER 119GB LOCATED ON PANEL 133VU, PERFORM APPROPRIATE PROCEDURE (REF. 32-00-00, P. Block 501).

(5) Pressurize hydraulic reservoirs (Ref. 29-14-00, P. Block 301).

WARNING : MAKE CERTAIN THAT THE DOOR TRAVEL RANGES ARE CLEAR.

(6) Close main gear doors (Ref. 32-12-11, P. Block 301).

(7) Top up hydraulic reservoirs if necessary (Ref. 12-12-29, P. Block 1).

(8) Remove warning notices.

(9) Close access doors, remove access platforms and safety barriers.

(10) Remove all ground handling and maintenance equipment, standard and special tools, together with ground power and replenishing equipment all access equipment and miscellaneous items.

WARNING : CHECK THAT LANDING GEAR GROUND SAFETIES INCLUDING WHEEL CHOCKS ARE IN POSITION.

BEFORE APPLYING OR RELIEVING HYDRAULIC SYSTEM PRESSURE, MAKE CERTAIN THAT THE TRAVEL RANGES OF THE CONTROL SURFACES ARE CLEAR.

BEFORE PRESSURIZING HYDRAULIC SYSTEMS, CHECK THAT ALL CONTROLS ARE SET TO CORRESPOND WITH THE ACTUAL POSITION OF THE SERVICES THEY OPERATE.

BEFORE PRESSURIZING HYDRAULIC SYSTEMS, MAKE CERTAIN THAT HYDRAULIC SYSTEM UNDER MAINTENANCE HAS BEEN ISOLATED.

BEFORE POWER IS SUPPLIED TO THE AIRCRAFT MAKE CERTAIN THAT ELECTRICAL CIRCUITS UPON WHICH WORK IS IN PROGRESS ARE ISOLATED.

1. Main Gear Shock Absorber

A. Equipment and Materials

	ITEM	DESIGNATION
	(1)860135953100001	Test Set - Landing Gear Safety Relay Control Simulator
	(2)F21852	Trolley - Main Gear Shock Absorber Handling
	(3)H46750	Extractor
	(4)C47511	Adaptor
	(5)F47532	Retaining Wrench
	(6)F47531	Extractor
	(7)F47530	Positioning Pin
	(8)C47692	Extractor
	(9)	Access Platform 2.60 m (8 ft. 7 in.)
	10)	Safety Barriers
	11)	Warning Notices
	12)	Blanking Plugs
	13)	Container
	14)	Protective Caps
	15)	Hydraulic Jack
	16)	Hand Pump
	17)	Mini - Lift
	18)Material No. 04-004	Common Greases (Ref. 20-31-00)
R	19)Material No. 04-022	Common Greases (Ref. 20-31-00)
R	20)Material No. 05-047	Special Materials (Ref. 20-31-00)
R	21)Material No. 09-001	Sealants (Ref. 20-31-00)
R	22)Material No. 11-002	Cleaning Agents (Ref. 20-31-00)
R	23)Material No. 11-004A	Special Materials (Ref. 20-31-00)
	Referenced Procedures	
	- 07-11-00, P. Block 1	Jacking for Aircraft Maintenance Operations
	- 12-12-29, P. Block 1	Hydraulics
	- 12-12-32, P. Block 1	Landing Gear Replenishing

ITEM	DESIGNATION
- 12-22-32, P. Block 1	Landing Gear Lubrication
- 24-41-00, P. Block 301	External Power
- 29-10-00, P. Block 301	Main Hydraulic Power - Pressurization/ Depressurization
- 29-14-00, P. Block 301	Hydraulic Reservoir Pressurizing System
- 32-00-00, P. Block 501	Landing Gear
- 32-11-14, P. Block 401	Bogie Beam
- 32-11-15, P. Block 401	Pitch Damper
- 32-12-11, P. Block 301	Main Gear Main Door - (Ground Door(s) Opening)
- 32-22-11, P. Block 301	Nose Gear Main Door
- 32-31-00, P. Block 501	Normal Extension and Retraction
- 32-42-00, P. Block 501	Normal Braking

B. Procedure

(1)Job set-up

(a)On panel 4VU

- make certain that landing gear control lever is in **DOWN** position and prohibit its operation by displaying a warning notice.

(b)Between First Officer's and Third Occupant's seats

- make certain that landing gear Free Fall extension control handle is in Normal position.

(c)Open, safety and tag the following circuit breakers :

PANEL	SERVICE	IDENT.	LOCATION
133VU	HYDRAULIC/LDG GEAR PROX DET & RELAYS/ SYS1/GEAR DOWN/CTR PNL/POS IND	3GB	332/U53
22VU	LDG GEAR/EXTEND CTL	1GA	201/J28
133VU	HYDRAULIC/LDG GEAR PROX DET & RELAYS/ SYS2/FLT/GND	1GB	331/V52
133VU	HYDRAULIC/LDG GEAR PROX DET & RELAYS/ SYS1/RELAYS & RETRACT CTL	2GB	332/U51
	WARNING : PRIOR TO OPENING CIRCUIT BREAKER 119GB ON PANEL 133VU, TAKE THE APPROPRIATE SAFETY MEASURES (Ref. 32-00-00, P. Block 501).		
133VU	HYDRAULIC/LDG GEAR PROX DET & RELAYS/ SYS1/FLT/GND	119GB	332/U52
133VU	HYDRAULIC/LDG GEAR PROX DET & RELAYS/ SYS2/GEAR DOWN/OVHD PNL/POS IND	83GB	331/V51
133VU	HYDRAULIC/BRAKES SYSTEM/CTL UNIT/NORM	2GG	332/U55
133VU	HYDRAULIC/BRAKES SYSTEM/CTL UNIT/SUPPLY	41GG	332/U56
133VU	HYDRAULIC/BRAKES SYSTEM/CTL UNIT/NORM	4GG	331/V55
133VU	HYDRAULIC/BRAKES SYSTEM/CTL UNIT/SUPPLY	42GG	331/V56
133VU	HYDRAULIC/BRAKES SYSTEM/CTL UNIT/CTL &/ WARM	5GG	333/T56
133VU	HYDRAULIC/BRAKES SYSTEM/CTL UNIT/LAND/	98GG	333/T55

PANEL	SERVICE	IDENT.	LOCATION
133VU	HYDRAULIC/BRAKES/TEMP/WARM	17GW	331/V54
133VU	HYDRAULIC/BRAKES/TEMP/DEJ/UNIT	1GW	335/R58
133VU	HYDRAULIC/ELEC/PUMPS/WARM	4GE	331/V60

(d)Position access platform
(e)Position safety barriers prohibiting access to gear door travel ranges.
WARNING : MAKE CERTAIN THAT THE DOOR TRAVEL RANGES ARE CLEAR.
(f)Open main gear doors (Ref. 32-12-11, P. Block 301),
WARNING : WHEN DOORS ARE OPEN MAKE CERTAIN THAT SAFETY COLLARS ARE POSITIONED ON DOOR ACTUATING CYLINDERS.
(g)Depressurize Green hydraulic system (Ref. 29-10-00, P. Block 301) and prohibit its pressurization by displaying a warning notice
- on Green hydraulic system ground connectors
- on panel 427VU to prohibit operation of Green electric pumps (ELEC PUMPS pushbutton switch).
(h)Depressurize Yellow hydraulic system (Ref. 29-10-00, P. Block 301) and prohibit its pressurization bydisplaying a warning notice
- on Yellow hydraulic system ground connectors
- on panel 427VU to prohibit energization of power transfer unit (right PTU pushbutton switch)
(j)Depressurize Green and Yellow hydraulic reservoirs (Ref. 29-14-00, P. Block 301) and prohibit their pressurization by displaying a warning notice.
- on panel 429VU to prohibit APU starting
- on reservoir pressurization connector
(k)Jack up the aircraft, rear wheels clear of ground (4 to 5 cm approx.) (1.574 to 1.968 in. approx.) in order to place pitch damper in neutral position (Ref. 07-11-00, P. Block 1).
(l)Remove casing under bogie beam (Ref. 32-11-14, P. Block 401).
(m)Position a hydraulic fluid container.
(n)Disconnect hydraulic lines at false torque links-shock strut and shock strut-bogie beam. Install blanking plugs.
(p)Disconnect hydraulic lines at lower torque link-bogie beam. Install blanking plugs.
(q)Disconnect electrical cables at false torque links. Install protective caps.
(r)Disconnect electrical lines at shock strut-bogie beam. Install protective caps.
(s)Remove connecting blocks and brake bars at shock absorber (Ref. Fig. 404)
1 Remove cotter pins (50).
2 Remove nuts (51), washers (52), bolts (53) and inboard support (54) or outboard support (55).
(t)Remove pitch damper (Ref. 32-11-15, P. Block 401).
(u)Install hydraulic jack at the rear of bogie beam to facilitate removal of bogie beam/shock absorber hinge pin.
(v)Disconnect bogie beam from shock absorber (Ref. 32-11-14, P. block 401).

(w)Slightly jack up the aircraft to remove bogie beam from shock absorber.
(x)Remove hydraulic jack.
(y)Remove bogie beam.
(z)Jack up the aircraft until shock absorber-to-fork fitting center is at 1100 ± 5mm (43.3 ± 0.19 in.) from ground.
(aa)Gradually depressurize shock absorber (Ref. 12-12-32, P. Block 1).
(ab)Unlock landing gear concerned and retract landing gear through 35° ± 1°.

WARNING : DURING THIS OPERATION, TAKE SPECIAL SAFETY PRECAUTIONS IN ORDER TO AVOID ANY ACCIDENT.

NOTE : Three possible procedures for positioning main landing gear through 35° ± 1° are described hereafter.

1 Procedure with a hand pump.
- Make certain that downlock safety pins are installed on nose gear and main landing gear not concerned.
- Remove downlock safety pin from main landing gear concerned.
- Disconnect gear down and gear up pressure lines (hoses) upstream of brake strut actuating cylinder 1208 (1209) and actuating cylinder 1204 (1205).
- Connect pressure line of hand pump on gear retraction lines through a Tee coupling on main landing gear side (blank off pressure line on A/C side).
- Connect return line of hand pump through a Tee coupling to gear extension lines (both actuators) of brace strut actuator and retraction actuator.

NOTE : Return reservoir of hand pump should be able to absorb actuating cylinder retraction chamber volume of between 6 to 8 liters plus actual level.

- Start pumping to reach main landing gear retraction angle of 35° ± 1° to match tool cradle, then close hand pump solenoid valve. Using a mini-lift secure main landing gear shock strut to aircraft structure (main landing gear door actuator upper hinge point).

2 Procedure if no hand pump is available. (Using green hydraulic pumps).
- Make certain that downlock safety pins are installed on nose gear and main landing gear not concerned.
- Remove downlock safety pin from main landing gear concerned.

WARNING : MAKE CERTAIN THAT DOOR TRAVEL RANGES ARE CLEAR.

- Make certain that main landing gear doors are open and open nose landing gear doors (Ref. 32-22-11, P. Block 301).

WARNING : WHEN DOORS ARE OPEN, MAKE CERTAIN THAT SAFETY COLLARS ARE POSITIONED ON DOOR ACTUATING CYLINDERS.

- Pressurize Green hydraulic reservoir.
- Remove safety clips and tags and close the following circuit breakers :

PANEL	SERVICE	IDENT.	LOCATION
22VU	LDG GEAR/EXTEND CTL	1GA	201/J28
133VU	HYDRAULIC/LDG GEAR PROX DET & RELAYS/ SYS1/GEAR DOWN/CTR PNL/POS IND	3GB	332/U53
133VU	HYDRAULIC/LDG GEAR PROX DET & RELAYS/	83GB	331/V51

PANEL	SERVICE	IDENT.	LOCATION
	SYS2/GEAR DOWN/OVHD PNL/POS IND		
	WARNING : AFTER CLOSING CIRCUIT BREAKER 119GB ON PANEL 133VU, PERFORM APPROPRIATE PROCEDURE (REF. 32-00-00, P. BLOCK 501)		
133VU	HYDRAULIC/LDG GEAR PROX DET & RELAYS/ SYS1/FLT/GND	119GB	332/U52
133VU	HYDRAULIC/ELEC/PUMPS/WARN	4GE	331/V60

- Energize the aircraft electrical network (Ref. 24-41-00, P. Block 301). Make certain that electronics racks ventilation is correct.
- Install landing gear safety relay control simulator test set 860135953100001 to simulate bogie beam proximity detector (8GA, 9GA) (11GA, 12GA) in NORMAL position. (bogie beam and proximity detector have been removed).
- On panel 4VU, place landing gear control lever in UP position.
- On panel 427VU, briefly press ELEC PUMPS pushbutton switch to move main landing gear from the downlocked position, then release pushbutton switch.
- Leave the landing gear control lever in UP position.
- Using a mini-lift secure main landing gear shock strut to the aircraft structure (main landing gear door upper hinge point).
- Place landing gear control lever in Neutral position.
- Depressurize Green hydraulic system (Ref. 29-10-00, P. Block 301) and prohibit its pressurization by displaying a warning notice
  . on Green Hydraulic system ground connectors
  . on panel 427VU to prohibit operation of Green electric pumps (ELEC PUMPS pushbutton switch).
- Depressurize Green hydraulic reservoir (Ref. 24-10-00, P. Block 301) and prohibit its pressurization by displaying a warning notice
  . on panel 429VU to prohibit APU starting
  . on reservoir pressurization connector.
- De-energize the aircraft electrical network (Ref. 24-41-00, P. Block 301).
- Open, safety and tag circuit breakers 3GB, 1GA, 83GB, 119GB and 4GE.

WARNING : PRIOR TO OPENING CIRCUIT BREAKER 119GB ON PANEL 133VU, TAKE THE APPROPRIATE SAFETY MEASURES (REF. 32-00-00, P. BLOCK 501).

- Using a mini-lift retract the main landing gear shock strut to 35° ± 1° to match tool support cradle angle.

3 Procedure using a hydraulic ground power cart equipped with an optional hand pump.

- Make certain that downlock safety pins are installed on nose gear and main landing gear not concerned.
- Remove downlock safety pin from main landing gear concerned.

WARNING : MAKE CERTAIN THAT THE DOOR TRAVEL RANGES ARE CLEAR.

- Make certain that main landing gear doors are open and open nose landing gear doors (Ref. 32-22-11, P. Block 301).

WARNING : WHEN DOOORS ARE OPEN, MAKE CERTAIN THAT SAFETY COLLARS ARE POSITIONED ON DOOR ACTUATING CYLINDERS.

- Pressurize Green hydraulic reservoir (Ref. 29-14-00, P. Block 301).
- Remove safety clips and tags and close the following circuit breakers :

PANEL	SERVICE	IDENT.	LOCATION
22VU	LDG GEAR/EXTEND CTL	1GA	201/J28
133VU	HYDRAULIC/LDG GEAR PROX DET & RELAYS/ SYS1/GEAR DOWN/CTR PNL/POS IND	3GB	332/U53
133VU	HYDRAULIC/LDG GEAR PROX DET & RELAYS/ SYS2/GEAR DOWN/OVHD PNL/POS IND	83GB	331/V51
	WARNING : AFTER CLOSING CIRCUIT BREAKER 119GB ON PANEL 133VU, PERFORM APPROPRIATE PROCEDURE (REF. 32-00-00, P. BLOCK 501)		
133VU	HYDRAULIC/LDG GEAR PROX DET & RELAYS/ SYS1/FLT/GND	119GB	332/U52
133VU	HYDRAULIC/ELEC/PUMPS/WARN	4GE	331/V60

Energize the aircraft electrical network (Ref. 24-41-00, P. Block 301). Make certain that electronics racks ventilation is correct. Install landing gear safety relay control simulator test set 860135953100001 to simulate bogie beam proximity detector (8GA, 9GA) (11GA, 12GA) in NORMAL position (bogie beam and proximity detector have been removed).

- Connect ground power cart to Green hydraulic ground connectors, fully open ground power cart by-pass valve.
- Start ground power cart.
- On panel 4VU, place landing gear control lever unit in UP position.
- Slowly close by-pass valve to allow main landing gear to move from downlocked position.
- Stop ground power cart.
- Using ground power cart hand pump, further retract main landing gear to match tool support cradle angle.
- Secure main landing gear shock strut (from uplock roller to main landing gear door actuator upper hinge point) to aircraft structure with a mini-lift or tensioner.
- De-energize the aircraft electrical network (Ref. 24-41-00, P. Block 301).
- Open, safety and tag circuit breakers 1GA, 83GB, 119GB, 3GB and 4GE.

WARNING : PRIOR TO OPENING CIRCUIT BREAKER 119GB ON PANEL 133VU, TAKE THE APPROPRIATE SAFETY MEASURES (REF. 32-00-00, P. BLOCK 501).

Place landing gear control lever in Neutral position.

- Depressurize Green hydraulic system (Ref. 29-10-00, P. Block 301) and prohibit its pressurization by displaying a warning notice
  . on Green hydraulic system ground connectors
  . on panel 427VU to prohibit operation of Green electric pumps (ELEC PUMPS pushbutton switch).
- Depressurize Green hydraulic reservoirs (Ref. 29-14-00, P. Block 301) and prohibit its pressurization by displaying a

warning notice
. on panel 429VU to prohibit APU starting
. on reservoir pressurization connector
- Disconnect hydraulic ground power cart from Green hydraulic ground connectors.

(ac)Prepare handling trolley F21852 for shock absorber removal (Ref. Fig. 401)

Handling trolley in stowed configuration.

1 Fold out fixed trolley A
2 Connect brace struts (9) with pins (10)
3 Free ramp (2) by removing pin (12)
4 Raise ramp using screwjack (8), the detachable trolley B remaining secured to upper part of ramp with pin (1).
5 Install brace struts (13).
6 Using screwjack (8), adjust ramp to enable installation of pin (14). Install pin (14).
7 Disconnect ramp lower part by removing pin (7).
8 Position hoist (15) and connect cable to the detachable trolley B.

(ad)Position handling trolley (Ref. Fig. 402)

Handling trolley in stowed configuration.

1 Fold out fixed trolley A
2 Connect brace struts (9) with pins (10)
3 Free ramp (2) by removing pin (12)
4 Raise ramp using screwjack (8), the detachable trolley B remaining secured to upper part of ramp with pin (1).
5 Install brace struts (13).
6 Using screwjack (8), adjust ramp to enable installation of pin (14). Install pin (14).
7 Disconnect ramp lower part by removing pin (7).
8 Position hoist (15) and connect cable to the detachable trolley B.

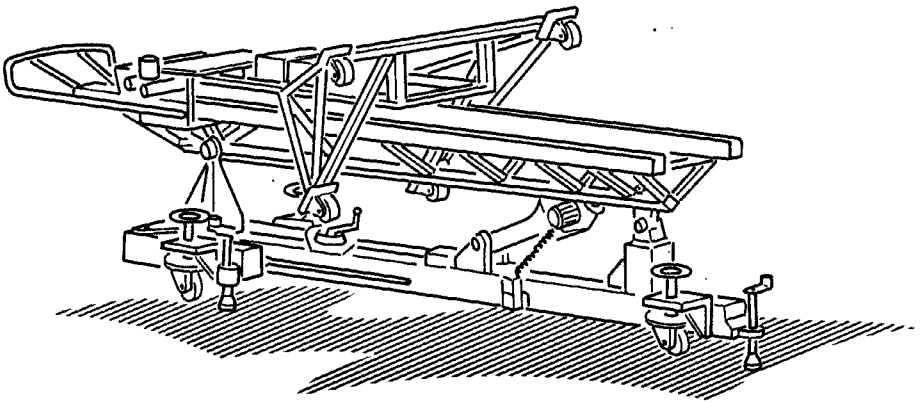
(ad)Position handling trolley (Ref. Fig. 402)

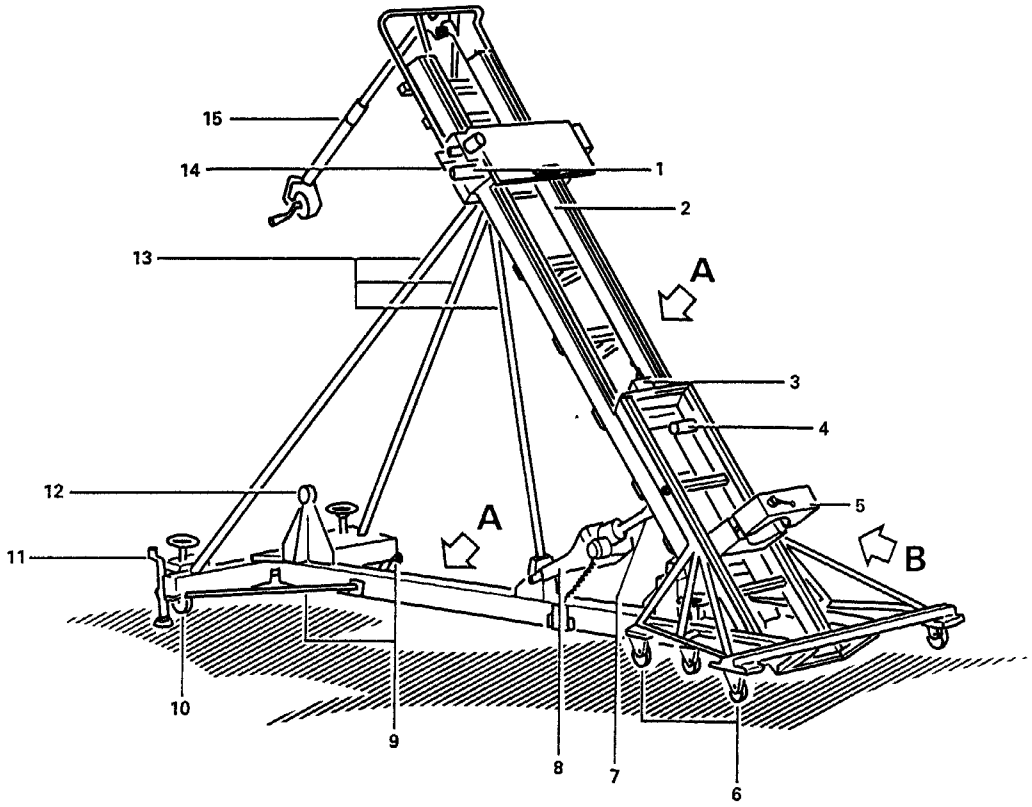
1 Open block (5)
2 Lower guide (4)
3 Lower locating stud (16) by removing pin (17)
4 Position trolley at landing gear leg
5 Adjust height of trolley A by actuating screwjacks (11).
6 Insert locating stud (16) in torque link upper hinge shaft and safety with pin (17).
7 Place a clinometer on shock absorbers sliding tube and accurately measure shock strut angle.
8 Place the clinometer on handling trolley and adjust ramp angle by actuating screwjack (8) to obtain same angle as gear leg.
9 Close and secure block (5)
10 Free detachable trolley by removing pin (1).

C. Removal (Ref. Fig. 401, 402, 403)
(Ref. Fig. 404, 405)
(Ref. Fig. 406)

NOTE : Using a spatula, remove rubber protective coating from parts to be removed taking care not to damage surface finish.

(1)Open shock absorber servicing valve





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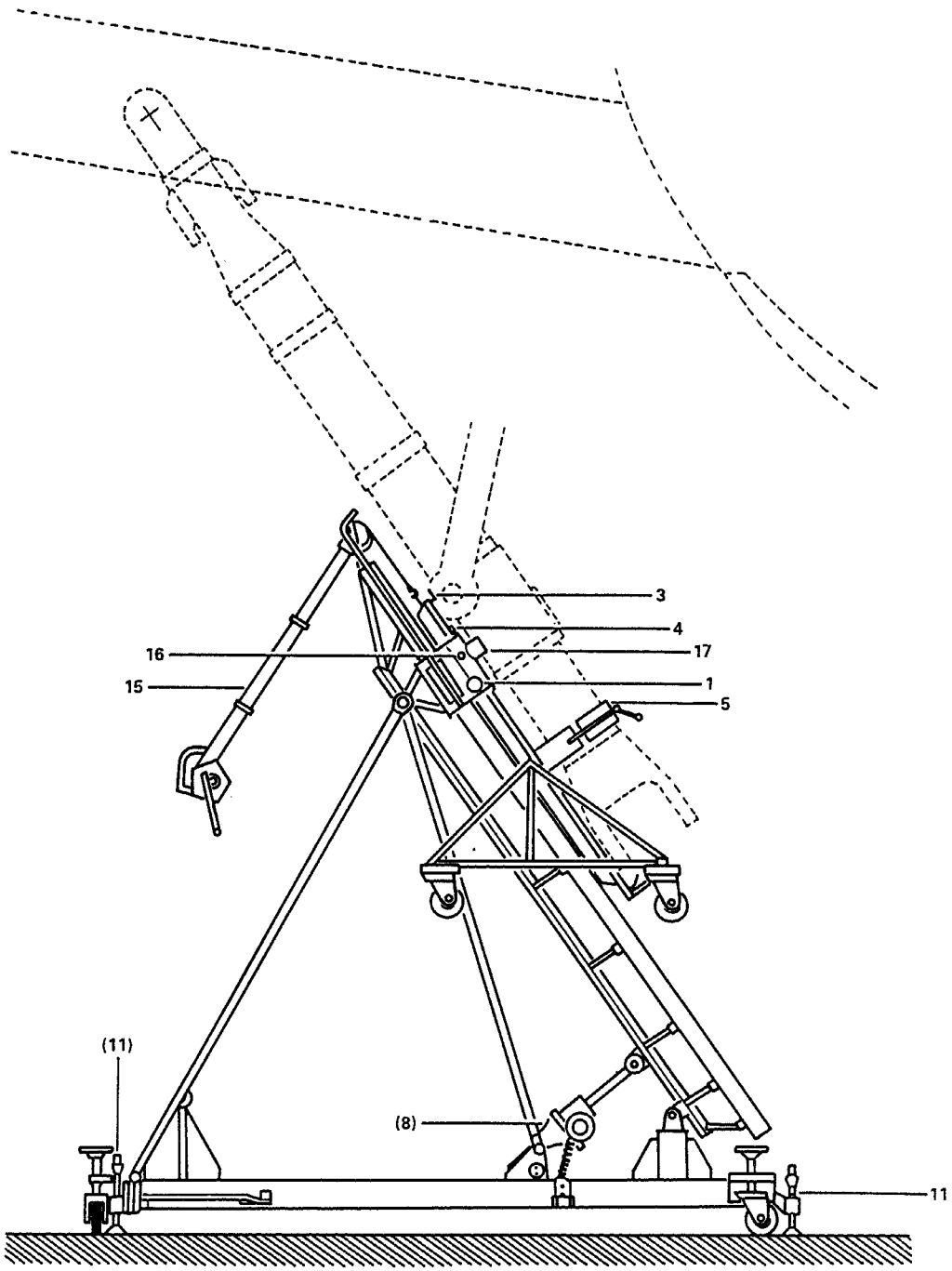
Handling Trolley - Main Gear Shock Absorber
Figure 401



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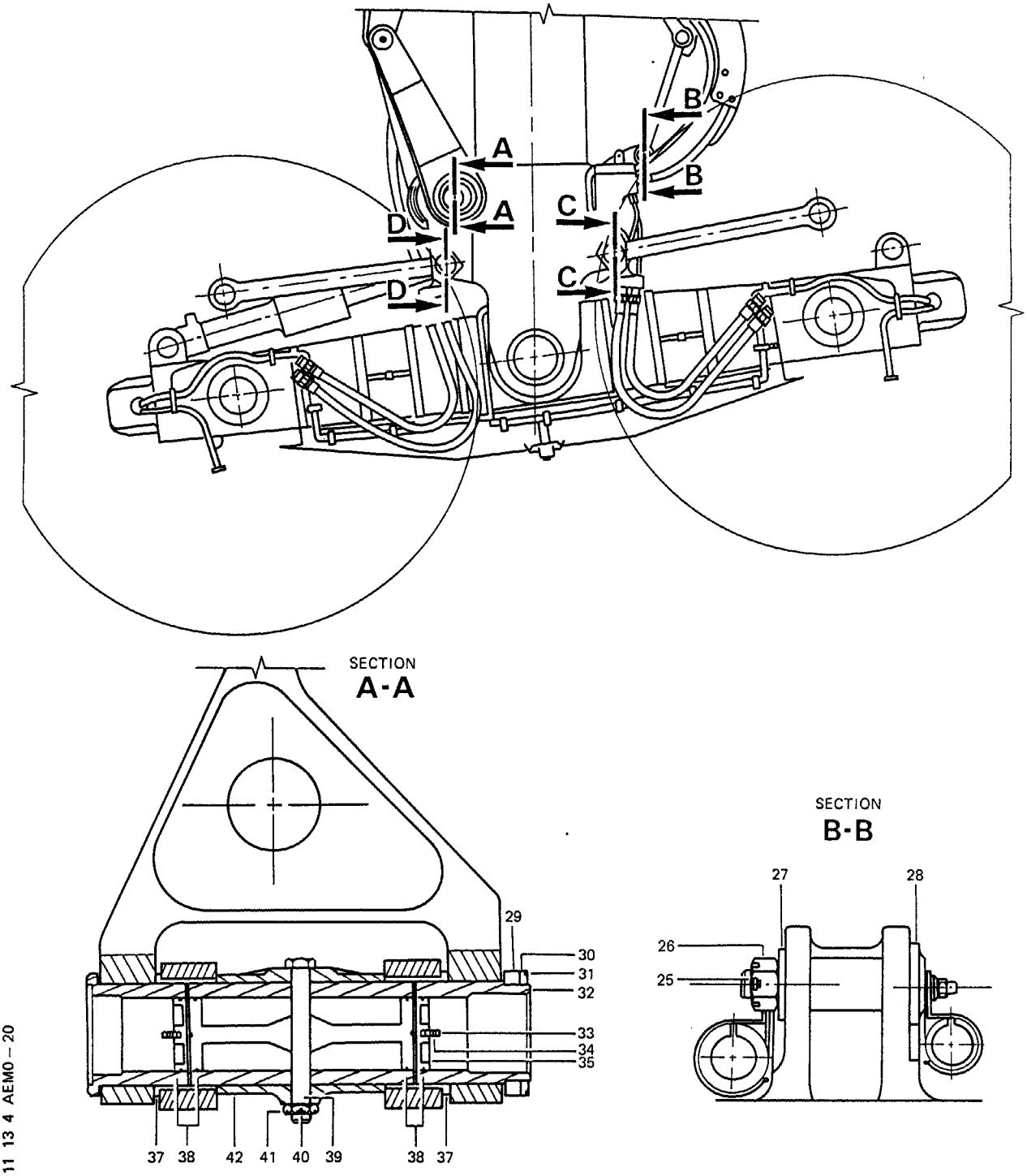
Handling Trolley - Installation
Figure 402



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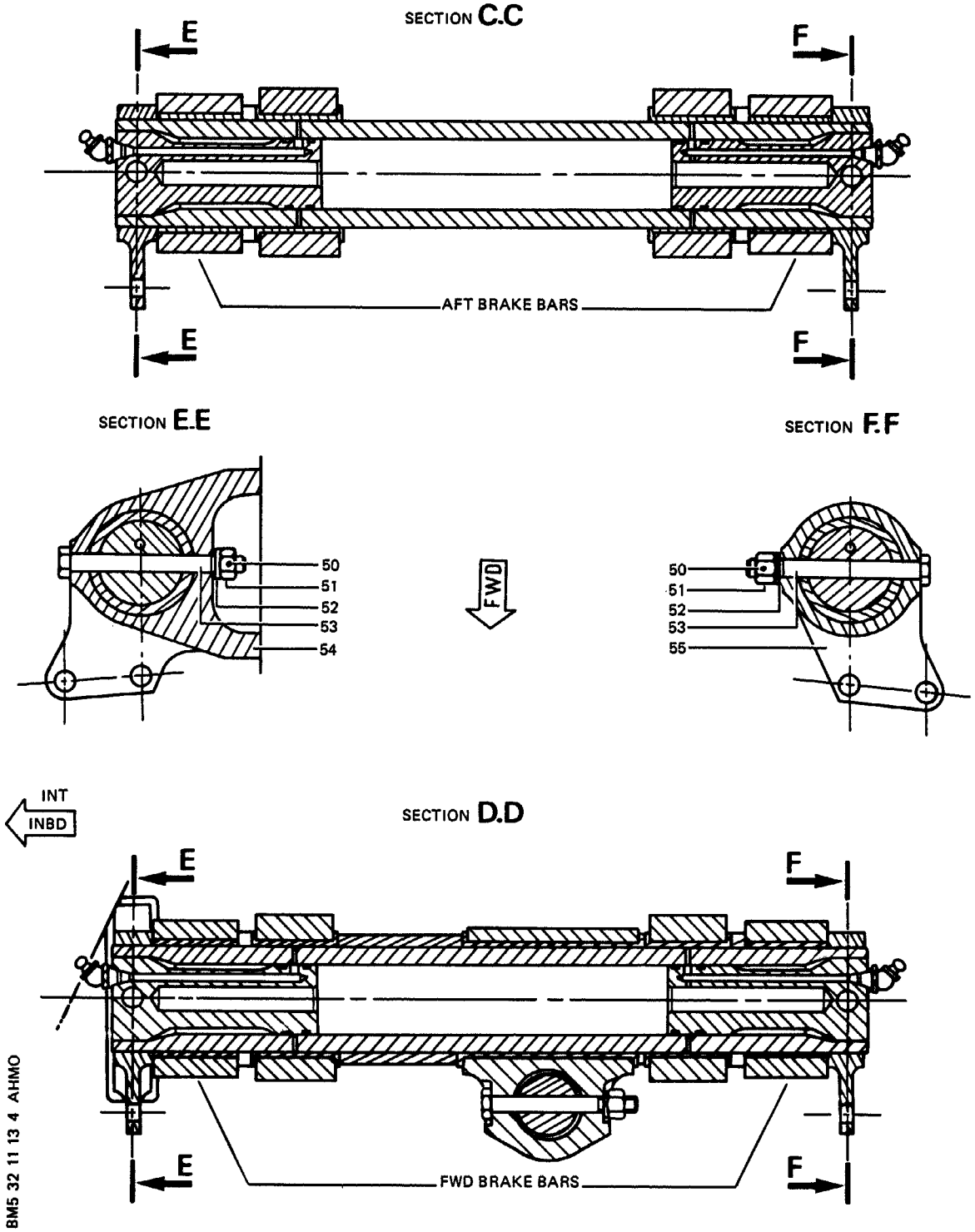
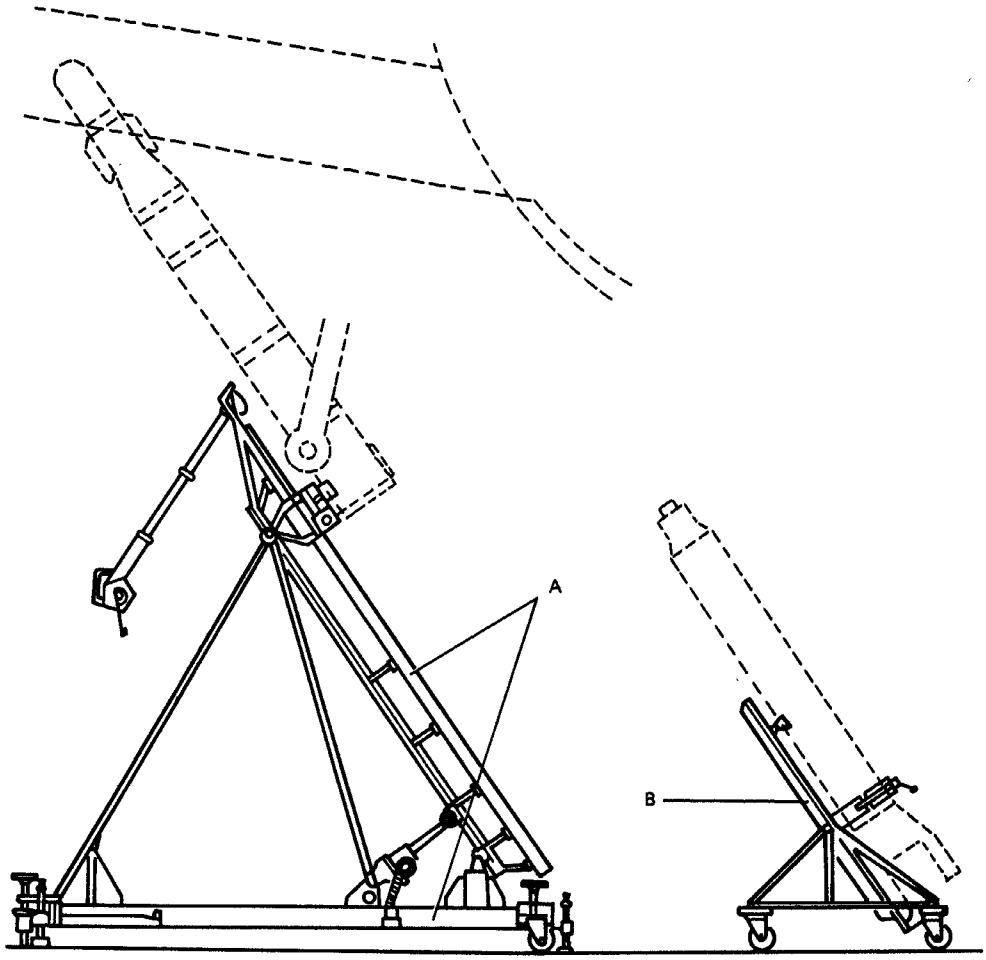
Main Landing Gear Shock Absorber - Details
Figure 403



Main Landing Gear Shock Absorber - Details
Figure 404



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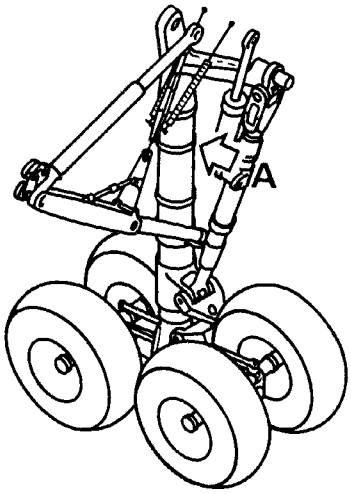
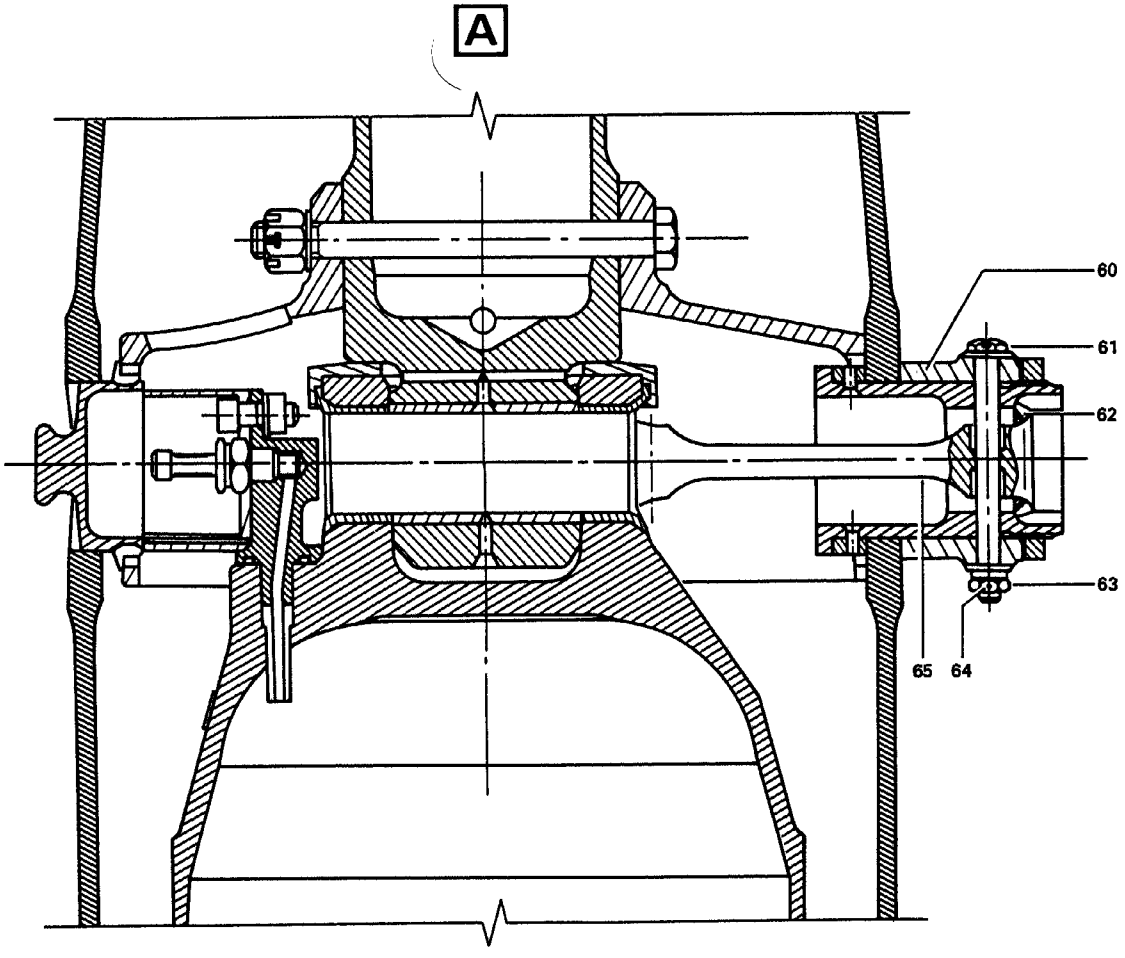
Handling Trolley - Utilization
Figure 405





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Main Landing Gear Shock Absorber - Attachment
Figure 406

(2)Using hoist (15) fully compress shock absorber
(3)Close servicing valve
(4)Disconnect shock absorber from shock strut and maintain with hoist (15).
(5)Disconnect false torque links at shock absorber
  (a)Remove and discard cotter pin (25)
  (b)Remove nut (26)
  (c)Remove washer (27) and bolt (28)
(6)Disconnect torque link from shock absorber
  (a)Remove cotter pin (40)
  (b)Remove nut (41) and bolt (39)
  (c)Remove spring clip (31) and washer (30) with extractor H46750.
  (d)Remove nut (29) with adaptor C47511 while holding shaft (32) with retaining wrench F47532.
  (e)Remove lubricators (33) and washers (34)
  (f)Drive out lubrication insert (35) with a drift
  (g)Remove shaft (32) with extractor F47531
  (h)Retain washers (37), spacer (42) and torque link hinge shaft.
(7)Disconnect shock absorber upper part from shock strut connecting rod
  (a)Remove cotter pin (64)
  (b)Remove nut (63)
  (c)Remove bolt (61), shaft (65) and seal (62) using extractor C47692
  (d)Gradually lower shock absorber by operating hoist (15)
  (e)Before sliding tube is completely clear of lower spherical bearing, bring guide (4) into contact with sliding tube.
  (f)Fully lower sliding tube until wheels of detachable trolley contact ground.
  (g)Disconnect hoist (15) cable from detachable trolley B.
  (h)Operate lever (3) to release detachable trolley B
  (j)Separate detachable trolley B from fixed trolley A
  (k)Remove shock absorber from detachable trolley
    NOTE : Do not modify adjustment of fixed trolley prior to shock absorber installation.

D. Preparation of Replacement Component
(1)Clean all parts with Material No.11-002 and dry with filtered compressed air.
  NOTE : Clean the attachment hardware with Material No. 11-004A and dry with filtered compressed air.
  Apply a light coat of Material No. 05-047 to the threads of all nuts, screws, bolts and pins.
(2)Make certain that all parts used to install replacement unit are in correct condition.
  (a)Check all parts for :
    Corrosion, flaking, scoring especially on chromed surfaces of shafts, sliding tube and spherical bearing.
  (b)Fractures, incipient cracks especially on attachment and fork end fittings.
  (c)Impact damage
  (d)Check lubricators for correct condition
  (e)Check all hydraulic and electrical connections and supports for correct condition.

(f)Check seals and servicing valve
R (g)Smear spherical bearing and shafts with Material No. 04-004 or
R Material No. 04-022 in order to facilitate installation.
R NOTE : Do not mix Material No. 04-004 with Material No. 04-022.
R You can use Material No. 04-022 as an alternative to
R Material No. 04-004. Clean and degrease the parts before you use
R Material No. 04-022.
NOTE : Slightly lubricate shock absorber fork end and bushes : do not leave grease deposits.
(h)Make certain that spherical bearing can move freely in its housing.
(j)Replace all damaged parts
(k)Check scraper for correct condition
(3)If shock absorber is to be replaced depreserve replacement shock absorber, remove external protective coverings, clean with Material No.11-002 and dry with filtered compressed air.

E. Installation
(1)Position shock absorber on detachable trolley B
(2)Position detachable trolley on fixed trolley ramp (2)
(3)Pull lever (3). Position detachable trolley on fixed trolley ramp and release lever (3). Trolley B is secured to ramp (2).
(4)Connect hoist (15) cable to detachable trolley B
(5)Raise detachable trolley B/shock absorber assembly by operating hoist (15).
(6)As soon as shock absorber is engaged in shock strut spherical bearing, lower guide (4).
NOTE : Take special care when the shock absorber is about to be introduced into the barrel upper bearing. If a hard spot is left, stop lifting, lower shock absorber slightly and adjust position. Repeat above procedure.
(7)Continue raising shock absorber until it is fully engaged in shock strut (internal stop position).
(8)Connect shock absorber to shock strut (Ref. Fig. 406)
(a)Connect upper end of shock absorber to shock strut connecting rod.
R 1 Apply a light coat of grease Material No. 04-004 or
R Material No. 04-022 on shaft (65).
Install shaft (65) equipped with seal (62). Install bolt (61) and apply sealant Material No. 05-047.
R NOTE : Do not mix Material No. 04-004 with Material No. 04-022.
R You can use Material No. 04-022 as an alternative to
R Material No. 04-004. Clean and degrease the parts before you
R use Material No. 04-022.
2 Install nut (63) and bring nut into contact with door attachment fitting (60) without torque tightening. Back off nut (63) by between 1/12 and 1/4 of a turn to enable installation of cotter pin (64).
3 Safety nut with new cotter pin (64)
(9)Connect torque link lower arm
(a)Align torque link lower arm and shock absorber fork fitting bores.
(b)Install washers (37) and spacer (42) ; install shaft (32) using extractor F47531.
(c)Position shaft (32) using positioning pin F47530

(d)Install lubrication insert (35) equipped with seals (38) taking care to align all safetying holes with positioning pin.
(e)Install lubricators (33) equipped with their washers (34).
(f)Install bolt (39) and nut (41). TORQUE nut (41) to between 5.4 and 6.4 m.daN (39.82 and 47.20 lbf.ft.).
(g)Install nut (29) with adaptor C47511
(h)Install washer (30) and spring clip (31)

(10)Connect false torque links to shock absorber (Ref. Fig. 403)
(a)Install bolt (28) and washer (27)
(b)Install nut (26) and TORQUE to between 7.8 and 9 m.daN (57.52 and 66.37 lbf.ft.)
(c)Safety nut with cotter pin (25).

(11)Open shock absorber servicing valve
(12)Allow detachable trolley B/shock absorber assembly to descend until shock absorber is fully extended.
(13)Secure detachable trolley on ramp (2) with pin (1). (Ref. Fig. 401, 402)
(14)Open block (5).
(15)Lower locating stud (16) by removing pin (17).
(16)Lower fixed trolley A onto its wheels by operating screwjacks (11).
(17)Withdraw handling trolley clear of aircraft
(18)Restore handling trolley to stowed configuration
(19)Restore landing gear leg to vertical position
(20)After possible utilization of hand pump, disconnect hand pump and connect hydraulic pressure and return hoses to brace strut actuating cylinder 1208 (1209) and actuating cylinder 1204 (1205).
(21)If Green electric pumps or hydraulic ground power cart have been used, remove landing gear safety relay control simulator test set 860135953100001.
(22)Remove safety clips and tags and close circuit breakers 3GB, 1GA, 83GB, 119GB and 4GE.

WARNING : AFTER CLOSING BREAKER 119GB LOCATED ON PANEL 133VU, PERFORM APPROPRIATE PROCEDURE (REF. 32-00-00, P. BLOCK 501).

(23)Pressurize Green hydraulic reservoir (Ref. 29-14-00, P. Block 301).
(24)Make certain that all landing gear doors are open and safety collars installed.
(25)Make certain that safety pins are installed on nose gear and on main gear not concerned.
(26)Remove mini-lift or tensioner maintaining landing gear at $35^{\circ} \pm 1^{\circ}$
(27)On panel 4VU, place landing gear control lever in DOWN position.
(28)On panel 427VU, press then release ELEC PUMPS pushbutton switch.
(29)Install safety pin on downlocked gear.
(30)Charge shock absorber (Ref. 12-12-32, P. Block 1)
(31)Position bogie beam under shock absorber.
(32)Slowly lower to correctly position bogie beam/shock absorber hinge pin.

NOTE : Install hydraulic jack at the rear of bogie beam to facilitate installation of bogie beam/shock absorber hinge pin.

(33)Install bogie beam/shock absorber hinge pin (Ref. 32-11-14, P. Block 401).
(34)Install clamps, supports and line clamping block mounted on shock absor-

ber.
(35)Install brake connecting blocks (Ref. Fig. 404).
(a)Install support (54) or (55)
NOTE : Support (54) is positioned inboard,
support (55) is positioned outboard.
(b)Align safetying holes in support and shaft and install bolt (53).
(c)Install washer (52) and nut (51). TORQUE nut (51) to between 0.9 and 1 m.daN (6.6 and 7.4 lbf.ft.) and safety with cotter pin (50).
(36)Install pitch damper (Ref. 32-11-15, P. Block 401).
(37)Remove blanking plugs and connect hydraulic lines.
(38)Remove protective caps and connect electrical cables.
(39)Charge shock absorber (Ref. 12-12-32, P. Block 1).
(40)Install casing under bogie beam (Ref. 32-11-14, P. Block 401).
(41)Pressurize Yellow hydraulic reservoir (Ref. 29-14-00, P. Block 301).
(42)Grease shock absorber (Ref. 12-22-32, P. Block 1).

F. Tests
(1)Carry out a landing gear Normal retraction/extension test (Ref. 32-31-00, P. Block 501, Para. 3.D.(4) and (5)).
(2)Carry out a Normal braking operational test (Ref. 32-42-00, P. Block 501 Para. 2.D.(4)).

G. Close-Up
(1)Make certain that working area is clean and clear of miscellaneous items of equipment.
WARNING : MAKE CERTAIN THAT AREA UNDER THE AIRCRAFT IS CLEAR.
CHECK THAT LANDING GEAR SAFETY PINS ARE IN POSITION.
(2)Lower the aircraft onto its wheels (Ref.07-11-00, P. Block 1).
Make certain that shock absorber bears no signs of nitrogen or hydraulic fluid leakage.
(3)Remove safety clips and tags and close circuit breakers 1GB, 2GB, 2GG, 41GG, 4GG, 42GG, 5GG, 98GG, 17GW and 1GW.
(4)Check that system connections (electrical and hydraulic) have been correctly installed.
(5)Apply a bead of Material No. 09-001 on parts concerned.
(6)Close landing gear doors (Ref. 32-12-11, P. Block 301 and Ref 32-22-11, P. Block 301).
(7)Top up hydraulic reservoirs as required (Ref. 12-12-29, P. Block 1).
(8)Remove warning notices
(9)Close access doors and remove access platform and safety barriers.
(10)Remove all ground handling and maintenance equipment, standard and special tools, together with ground power and replenishing equipment, all access equipment and miscellaneous items.

2. Removal/Installation of Main Gear Shock Absorber Packing Retainer Preformed Packings and Seals

A. Reason for the Job

The purpose of this operation is to restore a shock absorbed removed for leakage at packing retainer between fixed cylinder and sliding tube, to operating condition by replacement of seal and preformed packings.

B. Equipment and Materials

	ITEM	DESIGNATION
	(1)Material No. 04-004	Common Greases (Ref. 20-31-00)
R	(2)Material No. 04-022	Common Greases (Ref. 20-31-00)
R	(3)Material No. 05-047	Special Materials (Ref. 20-31-00)
R	(4)Material No. 09-001	Sealant (Ref. 20-31-00)
R	(5)Material No. 11-002	Cleaning Agents (Ref. 20-31-00)
R	(6)Material No. 11-004A	Cleaning Agents (Ref. 20-31-00)

C. Procedure

(1)Job set-up

(a)Remove shock absorber (Ref. para. 1).
Shock absorber must remain on handling trolley in vertical position throughout the whole operation.

(b)Make Certain that tools and surrounding area are clean.

(c)Take all necessary precautions to avoid damage to chrome finish on sliding tube/fixed cylinder.

(d)Install previously removed servicing valve on shock absorber.

(2)Removal (Ref. Fig. 407)

WARNING : PRIOR TO COMMENCING WORK, MAKE CERTAIN THAT SHOCK ABSORBER IS FULLY DEPRESSURIZED).

(a)Shock absorber is in vertical position on handling trolley ; sliding tube is against internal mechanical stop.

(b)Remove rubber sealant at packing retainer (4). Retain stud (8) and cup (7).

(c)Remove retaining ring (9) through hole provided in sliding tube (6).

(d)Remove packing retainer (4) from fixed cylinder (5).

(e)Remove scraper (3) and seals (1) and (2).

(3)Preparation of replacement component

(a)Clean all parts removed with Material No. 11-002 and dry with filtered compressed air.

NOTE : Parts shall be perfectly clean.

NOTE : Clean the attachment hardware with Material No. 11-004A and dry with filtered compressed air.
Apply a light coat of Material No. 05-047 to the threads of all nuts, screws, bolts and pins.

(b)Install seals (1) and (2) and scraper (3) on packing retainer (4).
- Carefully clean grooves in packing retainer (4)
- Dry fit seals using spatula taking care to stretch them as little as possible.

- Fit seals against edge of groove opposing direction of packing retainer (4) installation
- Install scraper (3)

(4)Installation (Ref. Fig. 407)

NOTE : Make certain that hydraulic fluid in sliding tube (6) is clean and in correct condition (no color change or pollution). If necessary replace fluid.

(a)Install packing retainer (4) on fixed cylinder (5) taking care not to reach stop position at end of cylinder.

(b)Using handling trolley and hoist bring fixed cylinder to vertical position and begin to engage it in sliding tube (6) taking care to :

1 Position valve block on shock absorber center line, torque link attachment side.

2 Position the two locating lugs on packing retainer (4) in the two recesses machined in sliding tube (6) making certain that threaded hole in packing retainer (4) is aligned with hole in sliding tube (6).

(c)Using a plastic mallet, make certain that packing retainer (4) is correctly installed.

R (d)Smear retaining ring (9) with grease Material No. 04-004 or
R Material No. 04-022 and insert retaining ring between packing
R retainer (4) and sliding tube (6) through hole, with retaining ring
R lug outwards.
R NOTE : Do not mix Material No. 04-004 with Material No. 04-022.
R You can use Material No. 04-022 as an alternative to
R Material No. 04-004. Clean and degrease the parts before you use
R Material No. 04-022.

(e)Install cup (7).

(f)Screw stud (8) onto packing retainer (4) and safety by deforming retaining cup (7)

(g)Smear visible parts with Material No. 09-001 : area marked E.

(h)Perform leakage tests

Pressurize shock absorber with nitrogen through servicing valve and allow to extend slowly. Clean fixed cylinder (6) with a clean cloth.

1 Adjust pressure to 5 bars (72.5 psi), allow to stabilize then check with a pressure gage that there is no pressure drop over a period of three minutes.

2 Perform the same test at 20 bars (290 psi)

3 Gradually release pressure and leave servicing valve control nut in open position

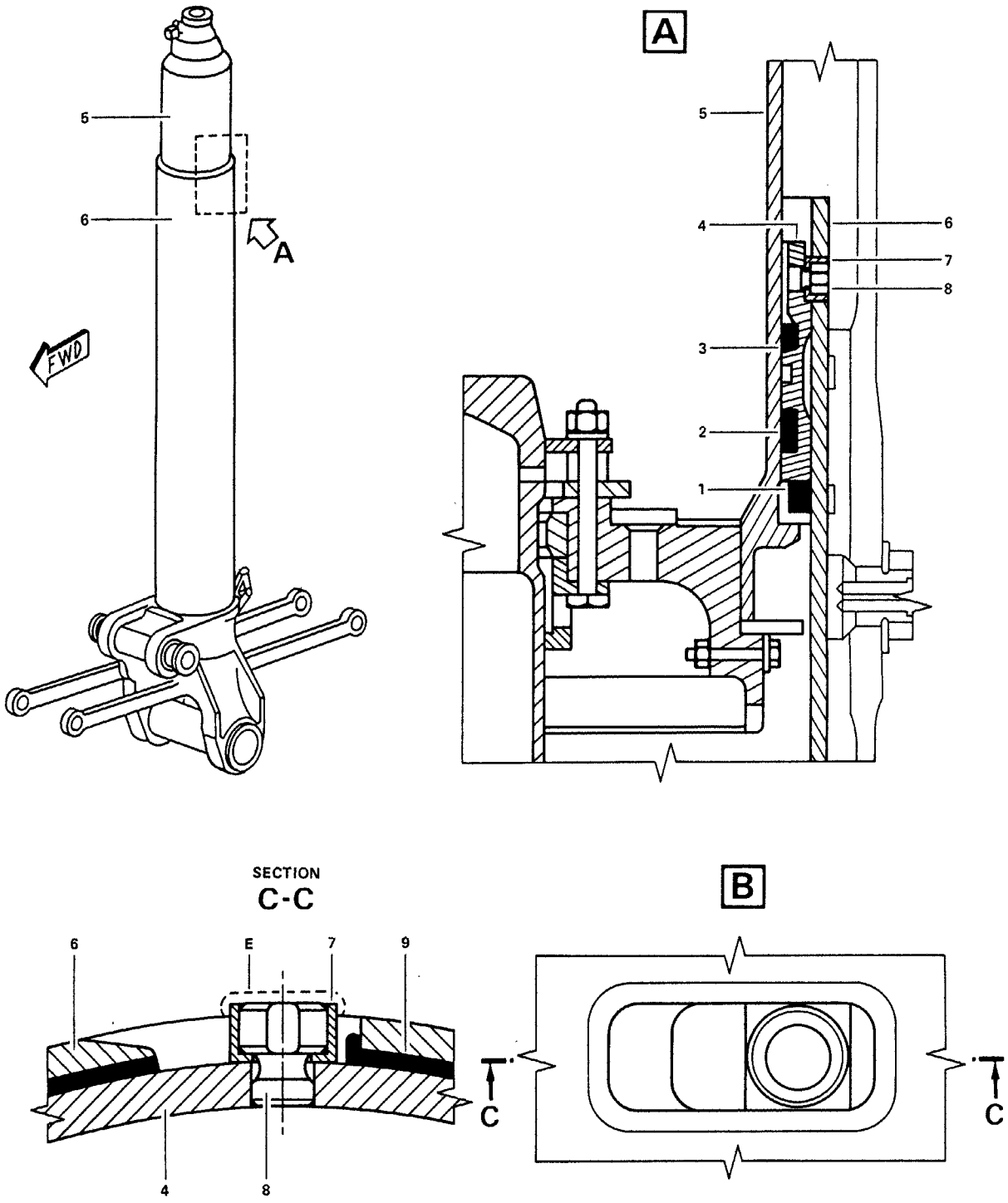
(j)In the event of leakage again proceed with removal/installation of packing retainer (4).

(k)Slowly compress shock absorber to mechanical stop.

(l)Remove servicing valve.

(5)Close-up

(a)Install shock absorber (Ref. paragraph 1 E. to 1.G.(10) included).



Main Gear Shock Absorber -
Removal/Installation of Packing Retainer
Figure 407

WARNING : CHECK THAT LANDING GEAR GROUND SAFETIES ARE INSTALLED.

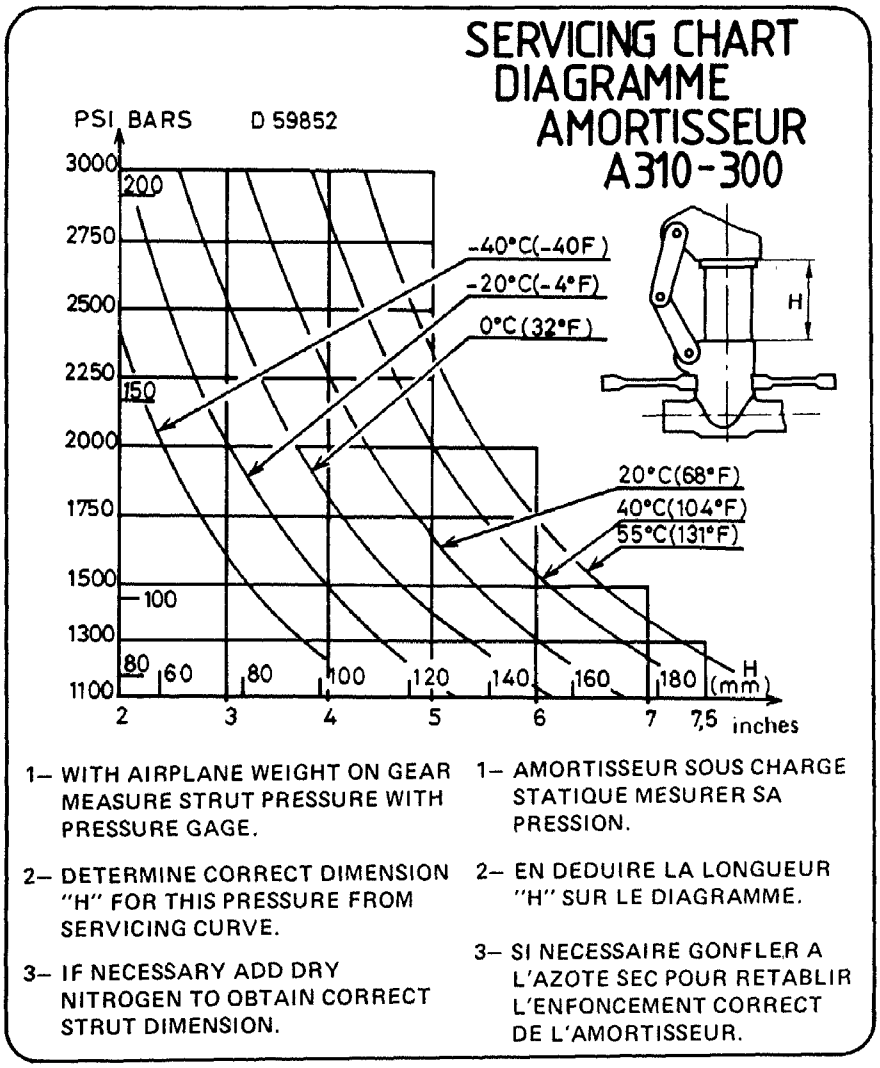
1. Check of Main Gear Shock Absorber Charging Pressure

A. Reason for the Job
(1)Check charging pressure with aircraft on its wheels. Check pressure when shock absorber seems excessively compressed with respect to load (Compare with other shock absorber).
(2)Check charging pressure with aircraft jacked up.

B. Equipment and Materials

ITEM	DESIGNATION
(1)	Pressure Gage : 0 to 50 bars (0 to 725 psi) For Shock Absorber Pressure Check. A/C on Jacks or Pressure Gage : 0 to 150 bars (0 to 2175 psi) for Shock Absorber Pressure Check. A/C on Wheels.
(2)	Access Platform, 2 m or 2.6 m (6 ft. 7 in. or 8 ft. 7 in.)
(3)H21824-1000	Filling Assembly
Referenced Procedure	
- 12-12-32, P. Block 1	Landing Gear - Replenishing
- 32-11-13, P. Block 401	Main Gear Shock Absorber

C. Procedure
(1)Job set-up
(a)Position access platform.
(2)Check of charging pressure with aircraft on its wheels.
R (Ref. Fig. 601)
(Ref. Fig. 602)
(a)Measure shock absorber sliding tube stand-out dimension "H" between top of flat on torque link-to-shock absorber fork fitting and base of lower bearing housing.
NOTE : Take into account a length margin of 5% concerning the obtained value.
NOTE : The maximum permissible difference of extension between the LH and RH shock absorbers is the sum of maximum tolerances on each shock absorber.
(b)Remove protective plug from servicing valve and install filling assembly H21824-1000.
(c)Connect a 0 to 150 bar (0 to 2175 psi) pressure gage to filling assembly H21824-1000. Open valve, read pressure and refer to chart.
(d)Two conditions may exist :
1 Pressure reading versus dimension "H" is correct; no further action required.
NOTE : Momentary overcompression may result from a tight turn upon arrival at parking apron, in such case compression will return



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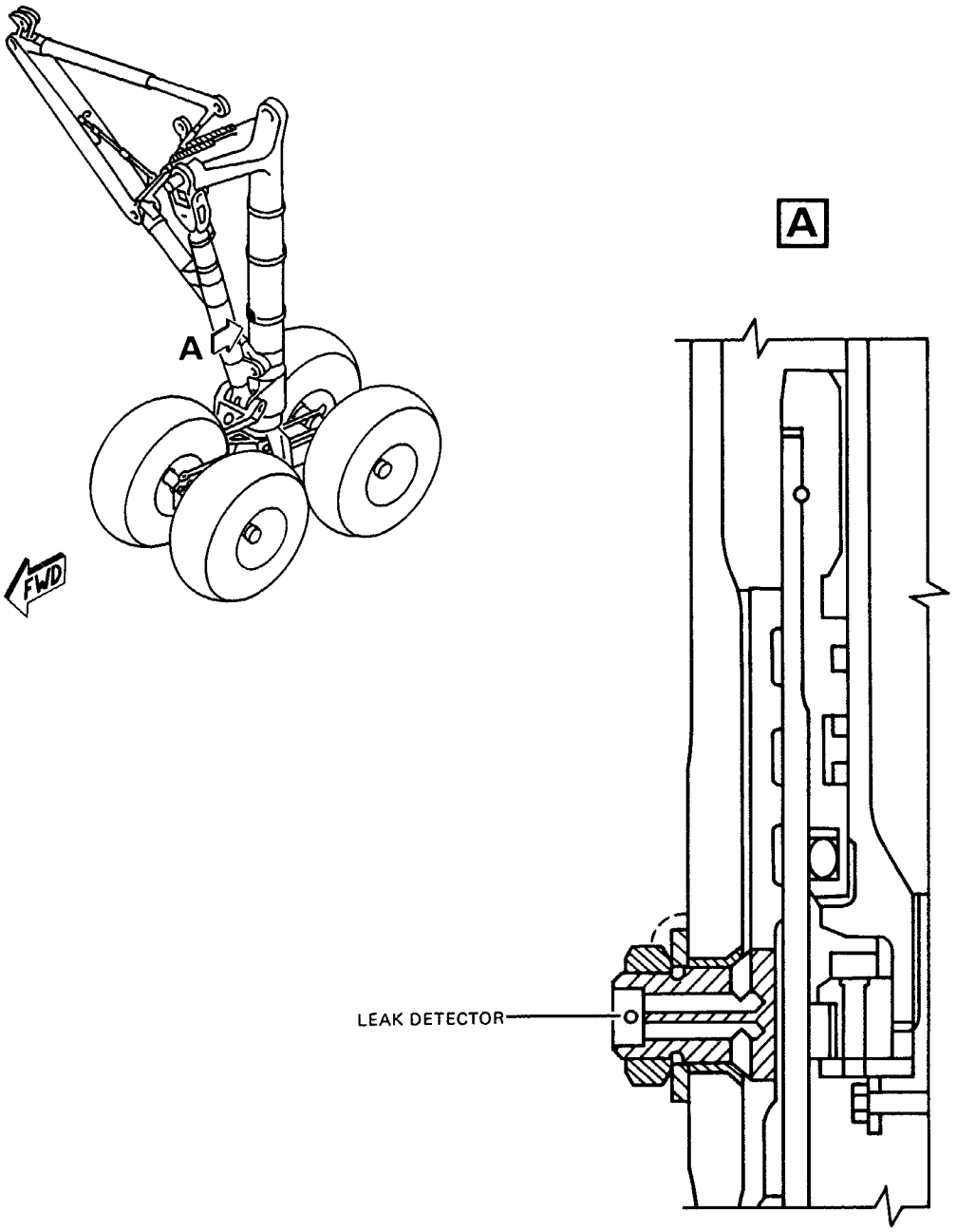
Main Gear Shock Absorber - Charging Chart
Figure 601

R



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Main Gear Shock Absorber - Leak Detector
Figure 602

to normal during taxiing.

2 Pressure reading versus dimension "H" is incorrect; the quantity of nitrogen or fluid may be considered incorrect.
- Check leak detector for traces of hydraulic fluid leakage (Ref. Fig. 602)
- If no trace of hydraulic fluid leakage is visible, perform a charging operation (Ref. 12-12-32, P. Block 1).
- If traces of hydraulic fluid leakage are visible, perform a complete servicing operation (replenishing and charging, Ref. 12-12-32, P. Block 1).

NOTE : If traces of fluid leakage persist it is necessary to replace packings/seals on packing retainer (Ref. 32-11-13, P. Block 401, para. 2).

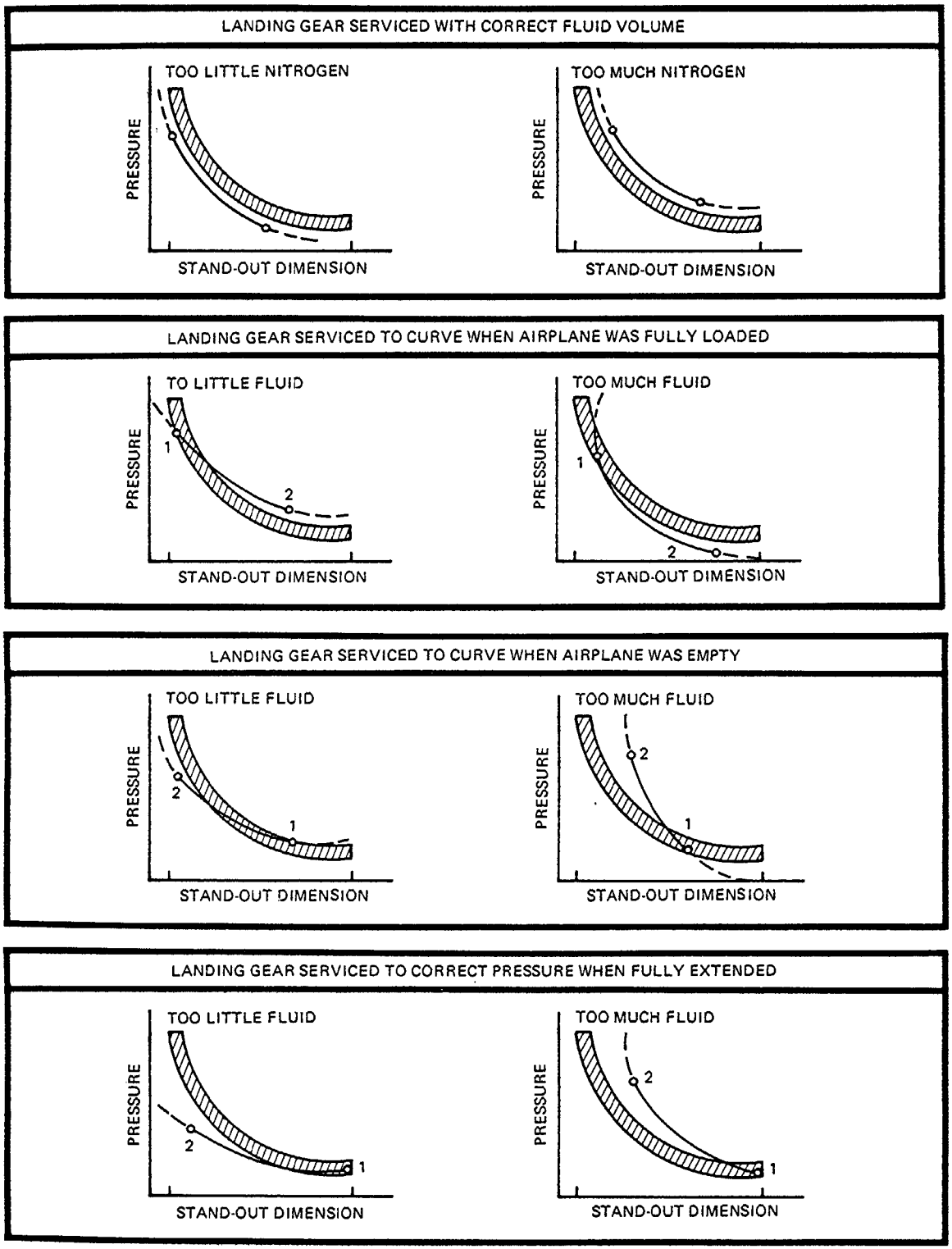
- Disconnect pressure gage, close servicing valve. TORQUE to between 0.5 to 0.8 m.daN (44.235 to 70.775 lbf. in.)
- Remove filling assembly H21824.
- Install valve protective plug.

(3)Check of charging pressure with aircraft jacked up.
(a)Remove servicing valve protective plug and install filling assembly H21824-1000.
(b)Connect a 0 to 50 bars (0 to 725 psi) pressure gage to filling assembly H21824-1000. Open valve and read pressure.
(c)In case of leakage, slowly discharge shock absorber. Replace valve; TORQUE to between 1 to 1.25 m.daN (88.47 to 110.58 lbf.in.).
In case of fluid leakage around valve, top up and perform charging operations (Ref. 12-12-32, P. Block 1).
(d)If pressure is excessive, slowly discharge shock absorber to obtain correct pressure P = 22 bars (319 psi) for a temperature of 15°C ±5° (58°F ±9°) (Ref. 12-12-32, P. Block 1).
(e)If pressure is too low, slowly charge shock absorber (Ref. 12-12-32, P. Block 1).
(f)Disconnect pressure gage, close charging valve, TORQUE to 0.5 to 0.8 m.daN (44.235 to 70.776 lbf.in.).
(g)Remove filling assembly H21824-1000.
(h)Install valve protective plug.

(4)Close-up
(a)Make certain that working area is clean and clear of tools and miscellaneous items of equipment.
(b)Remove access platform.

2. Check of Main Gear Shock Absorber Charging Pressure and Fluid Level with Lifting of A/C

A. General
Only two measurements at different shock absorber stand-out dimensions H (H being function of A/C weight) are necessary to determine whether or not a shock absorber is correctly serviced.
Shock absorber is correctly serviced if two measurements of shock absorber presure P and stand-out dimension H fall within the nominal range (shaded area).
(Ref. Fig. 603)



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Shock Absorber Pressure Versus Stand-Out Dimension - Chart
Figure 603

B. Equipment And Materials

ITEM	DESIGNATION
(1)	Pressure Gages
Referenced Procedures	
- 07-11-00, P. Block 1	Jacking for Aircraft Maintenance Operations
- 12-12-32, P. Block 1	Landing Gear Replenishing

C. Procedure

(1)Job-Set-Up

(a)Install pressure gages on main gear shock absorbers

(2)Check

NOTE : Aircraft wheels remain on ground throughout the following procedure.

(a)Take the first measurement with full weight of the aircraft on wheels and note stand-out dimension H and corresponding pressure P.

(b)To perform second measurement, lift the aircraft (Ref. 07-11-00, P. Block 1 to achieve shock absorber stand-out dimension H 1 of approximately 300 mm (12in.) making certain that wheels remain on ground; note corresponding pressure P1.

NOTE : Refer to 12-12-32, P. Block 1 to Compare the measured values and the main gear shock absorber charging chart curves.

(3)A shock absorber is incorrectly serviced if :

(a)Shock absorber curve is below but parallel to the nominal range
- fluid level correct but nitrogen volume insufficient

(b)Shock absorber curve is above but parallel to the nominal range
- fluid level correct but too much nitrogen

(c)Shock absorber curve is not parallel to the nominal range
- fluid volume is incorrect

(4)Shock absorber incorrectly serviced

Fully service shock absorber (Ref. 12-12-32, P. Block 1)

D. Close Up

(1)Remove pressure gages

(2)Lower the aircraft (Ref. 07-11-00, P. Block 1).

3. Check of Main Gear Shock Absorber Charging Pressure and Fluid Level without Lifting of A/C

A. General

Only two measurements at different aircraft weights are necessary to determine whether or not a shock absorber is correctly serviced.

B. Equipment and Materials

ITEM	DESIGNATION
Referenced Procedure	
- 12-12-32, P. Block 1	Replenishing and Charging - Landing Gear

C. Check
(1)A shock absorber is correctly serviced if shock absorber pressure and stand-out dimension curve representative of two measurements taken at different aircraft weights fall within the nominal range (shaded area). (Ref. Fig. 603)
NOTE : Pressure readings taken with aircraft on its wheels
(2)A shock absorber is incorrectly serviced if :
(a)Shock absorber curve is below but parallel to the nominal range
- fluid level correct but nitrogen volume insufficient
(b)Shock absorber curve is above but parallel to the nominal range
-fluid level correct but too much nitrogen
(c)Shock abosrber curve is not parallel to the nominal range
-fluid volume is incorrect
(3)Shock absorber incorrectly serviced
Fully service shock absorber (Ref. 12-12-32, P. Block 1).

4. Permissible Leakage on Main Gear Shock Absorber

A. Reason for the Job
Define the permissible limits in the event of abnormally compressed shock absorber.

B. Equipment and Materials

ITEM	DESIGNATION
(1)	Pressure Gage 0 to 50 bars (0 to 725 psi) or 0 to 150 bars (0 to 2175 psi)
(2)	Access Platform 2 m or 2.6 m (6 ft. 7 in. or 8 ft. 7 in.)

C. Procedure
(1)Job set-up
(a)Position access platform
(2)Check
CONFIGURATION :
- P : shock absorber charging pressure measured with aircraft on its wheels.
- H : compression dimension corresponding to P read on the pressure/ compression curve (servicing chart) affixed on landing gear.
- H' actual compression dimension measured on shock absorber.

(a)Measure H' : actual compression dimension measured on shock absorber.
1 H - H' ≤ 5mm (.197 in.)
- the shock absorber can remain in service
2 H - H' > 5 mm (.197 in.)
- Check for nitrogen leakage
- Check for leakage at charging valve. If leakage is found, discharge shock absorber and replace seal or charging valve as applicable.
- No trace of nitrogen leakage, perform check as per following paragraph.
3 5 mm (.197 in.) < H - H' ≤ 15 mm (.590 in.)

(Hydraulic fluid leakage)

- Charge shock absorber once to obtain H
  The shock absorber can remain in service as long as H - H' does not exceed 5 mm (.197 in.).
  Should this value be exceeded again remove shock absorber after return to main base.
- If H - H' ≤ 30 mm (1.181 in.) return to main base with no prior corrective action is allowed.
- If H - H' > 30 mm (1.181 in.) charge shock absorber to cancel H - H' before returning to the base.

NOTE : Where return to main base has been allowed the pilot shall endeavour to land at moderate vertical speed and avoid heavy braking.

- Display a warning notice in the flight compartment giving the pilot, the instructions contained in the above NOTE.

4 H - H' > 15 mm (590 in.)

After return to the main base shock absorber must be replaced in accordance with the instructions given in paragraph 2.C. (2) (3) above.

NOTE : The limit values for H - H' are valid only on condition that fluid temperature remains greater than minus 30°C (-22°F) to avoid bottoming under static load.

R BOGIE BEAM - REMOVAL/INSTALLATION

R WARNING : CHECK THAT THE LANDING GEAR GROUND SAFETIES INCLUDING WHEEL CHOCKS ARE IN POSITION.
BEFORE APPLYING OR RELIEVING HYDRAULIC SYSTEM PRESSURE, MAKE CERTAIN THAT THE TRAVEL RANGES OF THE CONTROL SURFACES ARE CLEAR.
BEFORE PRESSURIZING HYDRAULIC SYSTEMS, CHECK THAT ALL CONTROLS ARE SET TO CORRESPOND WITH THE ACTUAL POSITION OF THE SERVICES THEY OPERATE.
BEFORE POWER IS SUPPLIED TO THE AIRCRAFT MAKE CERTAIN THAT ELECTRICAL CIRCUITS UPON WHICH WORK IS IN PROGRESS ARE ISOLATED.
BEFORE PRESSURIZING HYDRAULIC SYSTEMS MAKE CERTAIN THAT HYDRAULIC SYSTEM UNDER MAINTENANCE HAS BEEN ISOLATED.

1. Bogie Beam

A. Equipment and Materials

ITEM	DESIGNATION
A. F47533	Extractor
B. F47534	Retaining Wrench
C. H46818	Extractor
D. H46817	Adaptor
E. H21840	Extractor
F. C47252	Guide Cone
G.	Warning Notices
H.	Safety Barriers
J.	Circuit Breaker Safety Clips
K.	Access Platform 2.60 m (8 ft. 7 in.)
L.	Blanking Plugs
M.	Hydraulic Fluid Container
N. Material No. 04-004	Common Greases (Ref. 20-31-00)
P. Material No. 04-022	Common Greases (Ref. 20-31-00)
Material No. 05-047	Special Materials (Ref. 20-31-00)
Material No. 09-001	Sealants (Ref. 20-31-00)
Material No. 09-002	Sealants (Ref. 20-31-00)
Material No. 11-002	Cleaning Agents (Ref. 20-31-00)
Material No. 11-004A	Cleaning Agents (Ref. 20-31-00)
Referenced Procedures	
- 07-11-00, P. Block 1	Jacking for Aircraft Maintenance Operations
- 12-12-29, P. Block 1	Hydraulics
- 12-22-32, P. Block 1	Landing Gear Lubrication
- 12-37-32, P. Block 1	Wheel Replacement
- 27-61-00, P. Block 501	Electrical and Mechanical Control
- 29-10-00, P. Block 301	Main Hydraulic Power - Pressurization/ Depressurization
- 29-14-00, P. Block 301	Hydraulic Reservoir Pressurizing System
- 32-00-00, P. Block 501	Landing Gear
- 32-11-15, P. Block 401	Pitch Damper
- 32-12-11, P. Block 301	Main Gear Main Door - (Ground Door(s) Opening)

ITEM	DESIGNATION
- 32-31-00, P. Block 501	Normal Extension and Retraction
- 32-42-00, P. Block 301	Normal Braking
- 32-42-00, P. Block 501	Normal Braking
- 32-42-27, P. Block 401	Brake Unit
- 32-42-57, P. Block 401	MLG Wheel Tachometer
- 32-43-00, P. Block 301	Alternate Braking with Anti Skid
- 32-43-00, P. Block 501	Alternate Braking with Anti Skid

B. Procedure

(1)Job Set-Up

(a)On panel 4VU

- make certain that landing gear control lever is in **DOWN** position and prohibit its operation by displaying a warning notice.

(b)Between the First Officer's and Third Occupant's seats

- make certain that landing gear Free Fall extension control handle is in Normal position.

(c)Open, safety and tag the following circuit breakers :

PANEL	SERVICE	IDENT.	LOCATION
133VU	HYDRAULIC/L/G PROX DET/& RELAYS SYS2/ FLT/GND	1GB	331/V52
133VU	HYDRAULIC/L/G PROX DET/& RELAYS SYS1/ RETRACT CTL	2GB	332/U51
WARNING : PRIOR TO OPENING CIRCUIT BREAKER 119GB LOCATED ON PANEL 133VU, TAKE THE APPROPRIATE SAFETY MEASURES (REF. 32-00-00, P. BLOCK 501).			
133VU	HYDRAULIC/L/G PROX DET/& RELAYS SYS1/ FLT/GND	119GB	332/U52
133VU	HYDRAULIC/BRAKES SYSTEM/CTL UNIT/NORM	2GG	332/U55
133VU	HYDRAULIC/BRAKES SYSTEM/CTL UNIT/SUPPLY	41GG	332/U56
133VU	HYDRAULIC/BRAKES SYSTEM/CTL UNIT/NORM	4GG	331/V55
133VU	HYDRAULIC/BRAKES SYSTEM/CTL UNIT/SUPPLY	42GG	331/V56
133VU	HYDRAULIC/BRAKES SYSTEM/CTL UNIT/CTL &/ WARN	5GG	333/T56
133VU	HYDRAULIC/BRAKES SYSTEM/CTL UNIT/LAND/ RECOVERY/SUPPLY	98GG	333/T55
133VU	HYDRAULIC/BRAKES/TEMP/WARN	17GW	331/V54
133VU	HYDRAULIC/BRAKES/TEMP/DET/UNIT	1GW	335/R58
133VU	HYDRAULIC/ELEC PUMPS WARN	4GE	333/T51

(d)Position access platform.

(e)Position safety barriers prohibiting access to gear door travel ranges.

WARNING : MAKE CERTAIN THAT THE DOOR TRAVEL RANGES ARE CLEAR.

(f)Open main gear doors (Ref. 32-12-11, P. Block 301).

WARNING : WHEN DOORS ARE OPEN MAKE CERTAIN THAT SAFETY COLLARS ARE POSITIONED ON DOOR ACTUATING CYLINDERS.

(g)Depressurize Green hydraulic system (Ref. 29-10-00, P. Block 301) and prohibit its pressurization by displaying a warning notice.

- on Green hydraulic system ground connectors.
- on panel 427VU to prohibit operation of Green electric pumps (ELEC PUMPS pushbutton switch).

(h)Depressurize Yellow hydraulic system (Ref. 29-10-00, P. Block 301) and prohibit its pressurization by displaying a warning notice.
- on Yellow hydraulic system ground connectors.
- on panel 427VU to prohibit energization of Yellow PWR TRANSF unit (RH PTU pushbutton switch).

(j)Depressurize Green and Yellow hydraulic reservoirs (Ref. 29-14-00, P. Block 301) and prohibit their pressurization by displaying a warning notice.
- on panel 429VU to prohibit APU starting.
- on hydraulic reservoir pressurization connector.

(k)Jack up the aircraft, wheels clear of ground (Ref. 07-11-00, P. Block 1).

(l)Position safety stay under the fuselage (STA4520/FR85).

(m)Remove the four wheels from bogie beam (Ref. 12-37-32, P. Block 1).

(n)Remove the four brake units (Ref. 32-42-27, P. Block 401).

(p)Remove the four tachometers (Ref. 32-42-57, P. Block 401).

(q)Disconnect pitch damper from bogie (Ref. 32-11-15, P. Block 401).

(r)Position container to recover hydraulic fluid.

(2)Removal

NOTE : Remove rubber protective coating from parts to be removed using a spatula, taking care not to damage surface finish.

(a)Remove casing (5)
(Ref. Fig. 401)

1 Remove the three screws (3), and retain three washers (4) for re-installation.

2 Remove the ten screws (1) and retain the ten washers (2) for re-installation.

3 Remove casing (5) and temporarily install removed components.

(b)Remove proximity detector support (6) (Ref. Fig. 402)

1 Cut and remove lockwire, remove nut (10) and retain bolt (12) for reinstallation.

2 Remove bolt (11).

3 Remove support (6) with proximity detectors.

(c)Remove pin (7) (Ref. Fig. 402)

1 Remove nut (8) and retain support (9) for reinstallation.

2 Remove pin (7), using extractor H21840.

(d)Remove Shock Absorber/Bogie Beam Link Pin (Ref. Fig. 403)

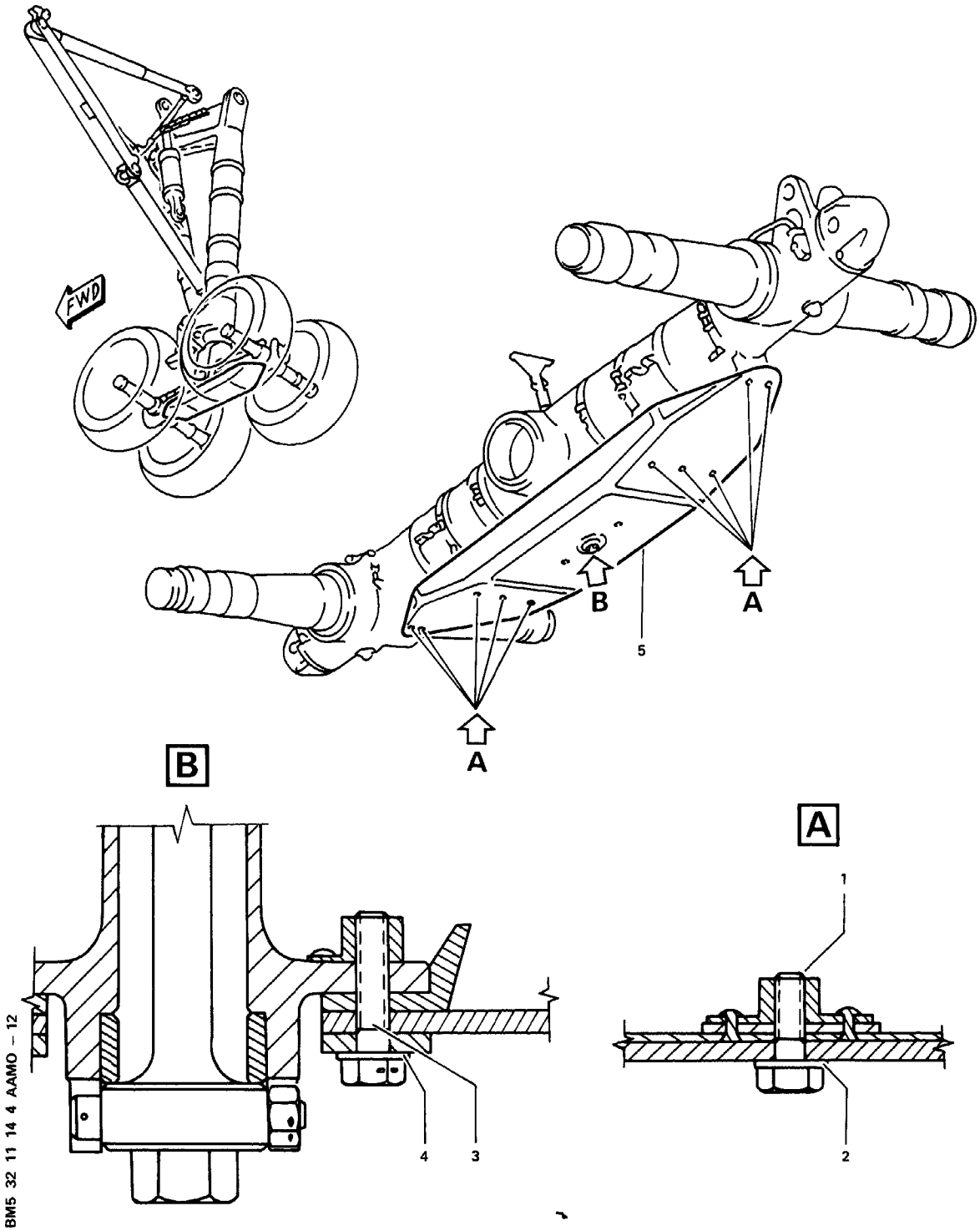
1 Position two wheel changing packs under ends of the bogie beam.

2 Disengage spring clip (16) from its groove.

3 Extract washer (15) using extractor H46818.

4 Remove nut (17) using adaptor H46817 while holding pin (14) with tenoned plate.

R NOTE : ALS Part 1 item, nut must be replaced by a new one every time
R it is removed from the pin. When the nut is temporarily removed
R and reinstalled for the purpose of performing maintenance
R outside a workshop, no replacement is required provided the
R nut's removal and reinstallation are performed on the same
R aircraft MSN and neither the aircraft MSN nor the nut accumu-



Main Landing Gear - Bogie Beam - Casing
Figure 401

R lates time in service during the period between the removal and
R reinstallation.

5 Extract pin (14) using extractor F47533.
6 Retain washers (13).
7 Remove bogie beam.
8 Temporarily install removed components on bogie beam.
NOTE : During extraction and until pin has been removed, maintain bogie beam level on packs by placing supports under axles.

(3)Preparation for Installation
(a)Clean and check removed components
1 Clean all components with Material No. 11-002 and dry with filtered compressed air.
NOTE : Clean the attachment hardware with Material No. 11-004A and dry with filtered compressed air.
Apply a light coat of Material No. 05-047 to the threads of all nuts, screws, bolts and pins.
2 Check that all parts are in correct condition.
- Check for oxidation, scaling and scratches on chromed surfaces of pins.
- Check for fractures and incipient cracks at collars, supports and line support blocks.
- Check for impact damage to casing, plate and caps.
3 Replace all damaged components.
4 Smear pins with Material No. 04-004 or Material No. 04-022 to facilitate installation.
NOTE : Do not mix Material No. 04-004 with Material No. 04-022.
You can use Material No. 04-022 as an alternative to Material No. 04-004. Clean and degrease the parts before you use Material No. 04-022.
5 Check that grease nipples are in correct condition.
6 Check that aircraft system connections are in good condition (hydraulic lines, electrical wiring, connectors, couplings...).
(b)General instructions for replacement of bogie beam
- Depreserve replacement bogie beam. Clean with Material No. 11-002 and dry with filtered compressed air.
- Install proximity detectors on new support.
(c)Position bogie beam for installation
1 Place bogie beam on the two jacks with supports under axles.
2 Position bogie beam in shock absorber yoke.

(4)Installation
(a)Install bogie beam on shock absorber.
1 Jack up bogie beam to align bores of bogie beam and shock absorber.
2 Ensure proper seating of assembly by placing supports under the axles.
3 Install washers (13).
4 Install pin (14) in shock absorber yoke bore with head facing inboard.
5 Align bores in pin and bogie beam using retaining wrench F47534.
6 Position pin (7) using tenoned plate C47252 taking care to align pin correctly with respect to the detector support.
NOTE : If necessary, temporarily install support (6) and align castellations and slots in pin (7). Prior to installation make certain that attaching hardware (clamps, supports etc.) is

installed on plate.

NOTE : Incorrect installation of pin (7) may result in non retraction of MLG.

7 Install support (9).

8 Install nut (8).

9 Install nut (17) using adaptor H46817. Lubricate thread with Material No. 05-047. Torque to between 20 and 30 m.dan (147.50 and 221.50 lbf ft).

R NOTE : ALS Part 1 item, nut must be replaced by a new one every time
R it is removed from the pin. When the nut is temporarily removed
R and reinstalled for the purpose of performing maintenance
R outside a workshop, no replacement is required provided the
R nut's removal and reinstallation are performed on the same
R aircraft MSN and neither the aircraft MSN nor the nut accumu-
R lates time in service during the period between the removal and
R reinstallation.

10 Install washer (15) and lock with spring clip (16).

11 Remove the two packs.

(b)Installation of detector support

1 Position support (6).

2 Install bolt (11) making certain that the bores of the bolt are aligned with the notches in the pin (7).

3 Install nut (10).

4 Install bolt (12). Safety with lockwire to head of bolt (11).

(c)Connect and route electrical wiring at clamp, supports, connectors and support blocks.

(d)Install casing

1 Position casing, install ten washers (2) and screws (1).

2 Install three washers (4) and three screws (3). Safety screws (3) with lockwire.

(e)Hook-up aircraft system connections at bogie beam

- hydraulic lines
- electrical wiring
- plugs and receptacles
- clamps, supports

(f)Apply a bead of Material No. 09-001 on the zones identified by "E". (Ref. Fig. 404)

Apply a bead of Material No. 09-002 on the zones identified by "F".

(g)Connect pitch damper to bogie beam (Ref. 32-11-15, P. Block 401).

(h)Install the four brake units (Ref. 32-42-27, P. Block 401).

(j)Install the four tachometers (Ref. 32-42-57, P. Block 401).

(k)Install the four wheels (Ref. 12-37-32, P. Block 1).

(l)Lubricate where applicable (Ref. 12-22-32, P. Block 1).

(5)Tests

(a)Carry out a Gear Retraction inhibition system test (main gear bogie (truck) beam not leveled) (Ref. 32-31-00, P. Block 501).

NOTE : Do not omit inflation of pitch damper after this test.

(b)Carry out a Normal extension and retraction functional test (Ref. 32-31-00, P. Block 501).

(c)Carry out spoiler and speed brake functional test (Ref. 27-61-00, P. Block 501, para 3.).

(6)Close-Up
(a)Remove hydraulic fluid container.
(b)Make certain that working area is clean and clear of tools and miscellaneous items of equipment.
WARNING : MAKE CERTAIN THAT AREA UNDER AIRCRAFT IS CLEAR.
(c)Remove safety stay STA4520 (FR85).
(d)Lower the aircraft onto its wheels (Ref. 07-11-00, P. Block 1).
(e)Bleed Normal braking system (32-42-00, P. Block 301) and Alternate braking system (32-43-00, P. Block 301) on landing gear concerned.
(f)Pressurize hydraulic reservoirs (Ref. 29-14-00, P. Block 301).
(f)Remove safety clips and tags and close circuit breakers 1GB, 2GB, 2GG, 41GG, 4GG, 42GG, 5GG, 98GG, 17GW, 1GW, 4GE.
WARNING : AFTER CLOSING CIRCUIT BREAKER 119GB, LOCATED ON PANEL 133VU, PERFORM APPROPRIATE PROCEDURE (REF. 32-00-00, P. BLOCK 501).
WARNING : MAKE CERTAIN THAT DOOR TRAVEL RANGES ARE CLEAR.
(g)Close main landing gear doors (Ref. 32-12-11, P. Block 301).
(h)Replenish hydraulic reservoirs as necessary (Ref. 12-12-29, P. Block 1).
(j)Remove warning notices.
(k)Close access doors, remove access platform and safety barriers.
(l)Remove all ground handling and maintenance equipment, standard and special tools, together with ground power and replenishing equipment, all access equipment and miscellaneous items.

2. Electrical Harness

A. Equipment and Materials

ITEM	DESIGNATION
A.	Warning Notices
B.	Safety Barriers
C.	Circuit Breakers Safety Clips
D.	Access Platform 2.60 m (8 ft. 7 in.)
E.	Blanking Plugs
F.	Hydraulic Fluid Container
G. Material No. 05-047	Special Materials (Ref. 20-31-00)
H. Material No. 09-001	Sealants (Ref. 20-31-00)
J. Material No. 11-002	Cleaning Agents (Ref. 20-31-00)
K. Material No. 11-004A	Cleaning Agents (Ref. 20-31-00)
Referenced Procedures	
- 12-12-29, P. Block 1	Hydraulics
- 12-22-32, P. Block 1	Landing Gear Lubrication
- 27-61-00, P. Block 501	Electrical and Mechanical Control
- 29-10-00, P. Block 301	Main Hydraulic Power - Pressurization/ Depressurization
- 29-14-00, P. Block 301	Hydraulic Reservoir Pressurizing System
- 32-12-11, P. Block 301	Main Gear Main Door - (Ground Door(s) Opening)
- 32-42-00, P. Block 501	Normal Braking
- 32-42-57, P. Block 401	MLG Wheel Tachometer
- 32-47-00, P. Block 501	Brake System Temperature

ITEM	DESIGNATION
- 32-48-00, P. Block 501	Brake Cooling
- 32-48-11, P. Block 401	Brake Fan

B. Procedure

(1)Job Set-Up

(a)On panel 4VU

- make certain that landing gear control lever is in **DOWN** position and prohibit its operation by displaying a warning notice.

(b)Between the First Officer's and Third Occupant's seats

- make certain that landing gear Free Fall extension control handle is in Normal position and prohibit its operation by displaying a warning notice.

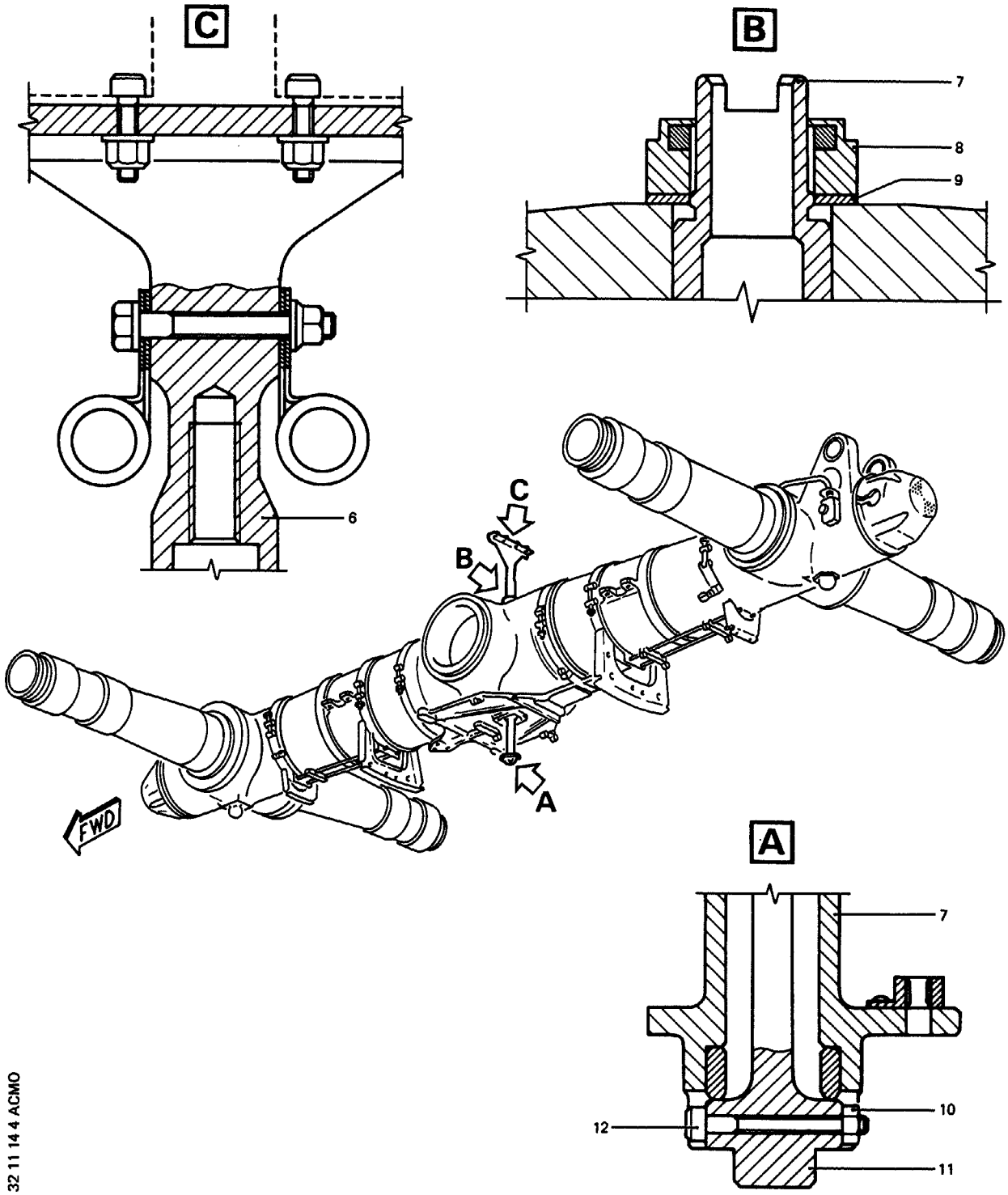
(c)Open, safety and tag the following circuit breakers :

PANEL	SERVICE	IDENT.	LOCATION
133VU	HYDRAULIC/L/G PROX DET/& RELAYS SYS2/ FLT/GND	1GB	331/V52
133VU	HYDRAULIC/L/G PROX DET/& RELAYS SYS1/ RETRACT CTL	2GB	332/U51
WARNING : PRIOR TO OPENING CIRCUIT BREAKER 119GB LOCATED ON PANEL 133VU, TAKE THE APPROPRIATE SAFETY MEASURES (REF. 32-00-00, P. BLOCK 501).			
133VU	HYDRAULIC/L/G PROX DET/& RELAYS SYS1/ FLT/GND	119GB	332/U52
133VU	HYDRAULIC/BRAKES SYSTEM/CTL UNIT/NORM	2GG	332/U55
133VU	HYDRAULIC/BRAKES SYSTEM/CTL UNIT/SUPPLY	41GG	332/U56
133VU	HYDRAULIC/BRAKES SYSTEM/CTL UNIT/NORM	4GG	331/V55
133VU	HYDRAULIC/BRAKES SYSTEM/CTL UNIT/SUPPLY	42GG	331/V56
133VU	HYDRAULIC/BRAKES SYSTEM/CTL UNIT/CTL &/ WARN	5GG	333/T56
133VU	HYDRAULIC/BRAKES SYSTEM/CTL UNIT/LAND/ RECOVERY/SUPPLY	98GG	333/T55
133VU	HYDRAULIC/BRAKES/TEMP/WARN	17GW	331/V54
133VU	HYDRAULIC/BRAKES/TEMP/DET/UNIT	1GW	335/R58
133VU	HYDRAULIC/ELEC PUMPS WARN	4GE	333/T51

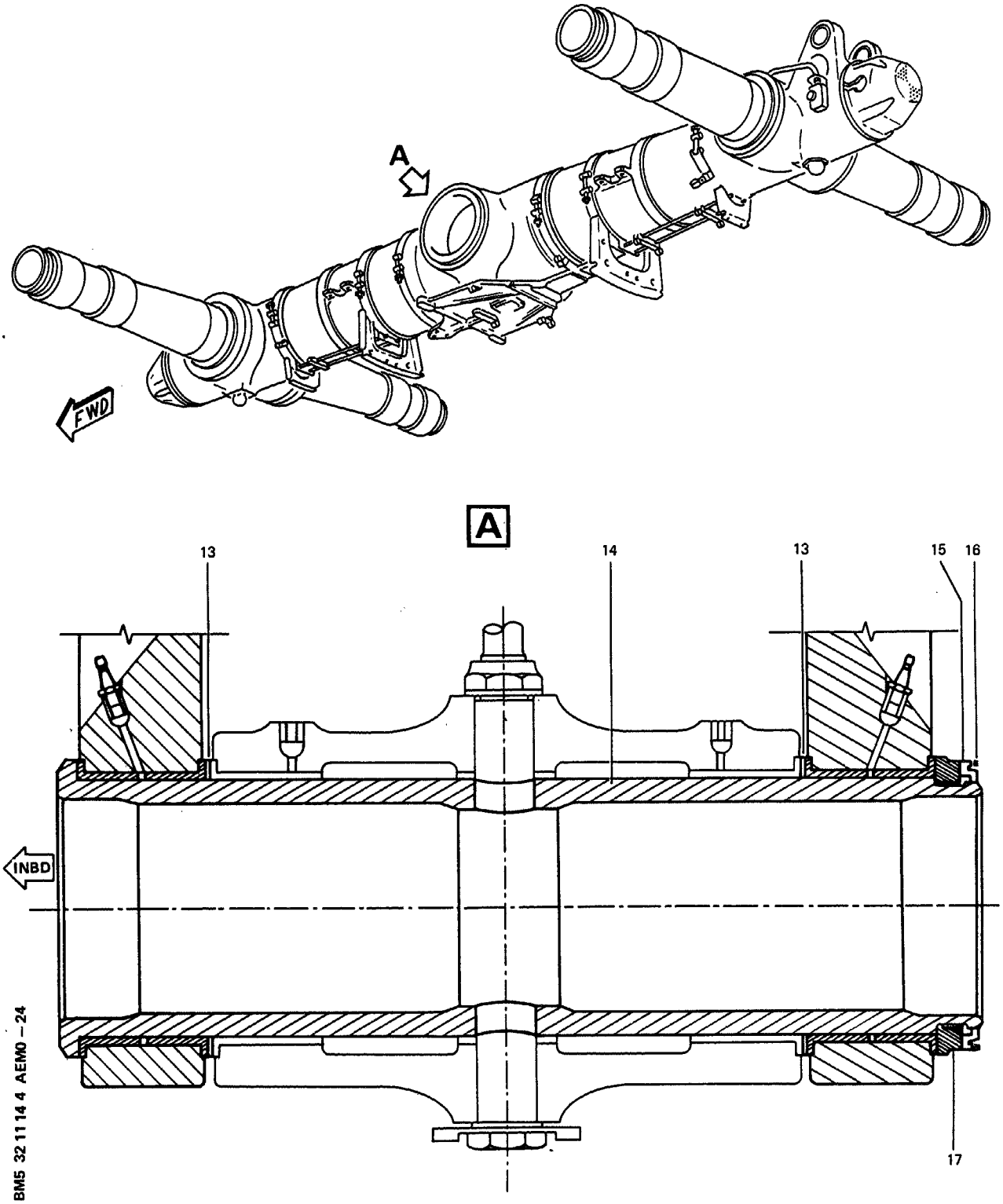
**ON A/C ALL

Post SB 32-2058 For A/C 101-200,

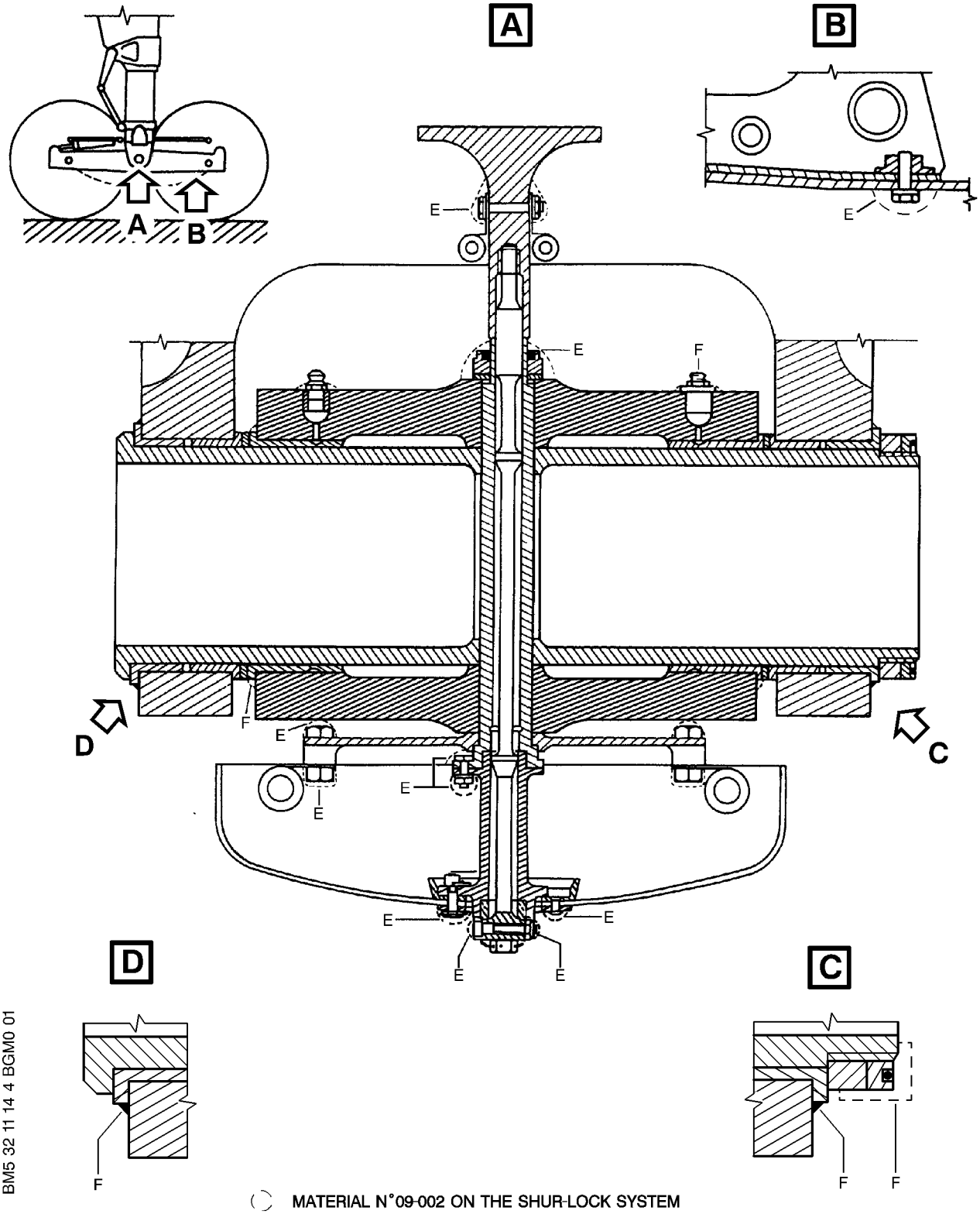
133VU	HYDRAULIC/BRAKE FANS/WHEEL/5 & 6	1GS	334/S52
133VU	HYDRAULIC/BRAKE FANS/WHEEL/7 & 8	4GS	334/S55
133VU	HYDRAULIC/BRAKE FANS/WHEEL/1 & 2	3GS	335/R52
133VU	HYDRAULIC/BRAKE FANS/WHEEL/3 & 4	2GS	335/R55
133VU	HYDRAULIC/BRAKES/FAN/CTL	17GS	331/V53
133VU	HYDRAULIC/TIRE/PRESS	1GV	333/T54



Main Landing Gear Bogie Beam - Detector Support
Figure 402



Main Landing Gear - Bogie Beam - Shock Absorber/Bogie Beam
Figure 403



MATERIAL N°09-002 ON THE SHUR-LOCK SYSTEM

Main Landing Gear Bogie Beam - Attachment
Figure 404

**ON A/C ALL

(d)Position access platform.
(e)Position safety barriers prohibiting access to gear door travel ranges.
WARNING : MAKE CERTAIN THAT THE DOOR TRAVEL RANGES ARE CLEAR.
(f)Open main gear doors (Ref. 32-12-11, P. Block 301).
WARNING : WHEN DOORS ARE OPEN MAKE CERTAIN THAT SAFETY COLLARS ARE POSITIONED ON DOOR ACTUATING CYLINDERS.
(g)Depressurize Green hydraulic system (Ref. 29-10-00, P. Block 301) and prohibit its pressurization by displaying a warning notice.
- on Green hydraulic system ground connectors.
- on panel 427VU to prohibit operation of Green electric pumps (ELEC PUMPS pushbutton switch).
(h)Depressurize Yellow hydraulic system (Ref. 29-10-00, P. Block 301) and prohibit its pressurization by displaying a warning notice.
- on Yellow hydraulic system ground connectors.
- on panel 427VU to prohibit energization of Yellow PWR TRANSF unit (RH PTU pushbutton switch).
(j)Depressurize Green and Yellow hydraulic reservoirs (Ref. 29-14-00, P. Block 301) and prohibit their pressurization by displaying a warning notice.
- on panel 429VU to prohibit APU starting.
- on hydraulic reservoir pressurization connector.
(k)Position safety stay under fuselage (STA 4520/FR85).
(l)Position container to recover hydraulic fluid.

**ON A/C ALL

Post SB 32-2058 For A/C 101-200,

(m)Remove the brake fans (Ref. 32-48-11, P. Block 401).

**ON A/C 101-200,

(m)Not applicable.

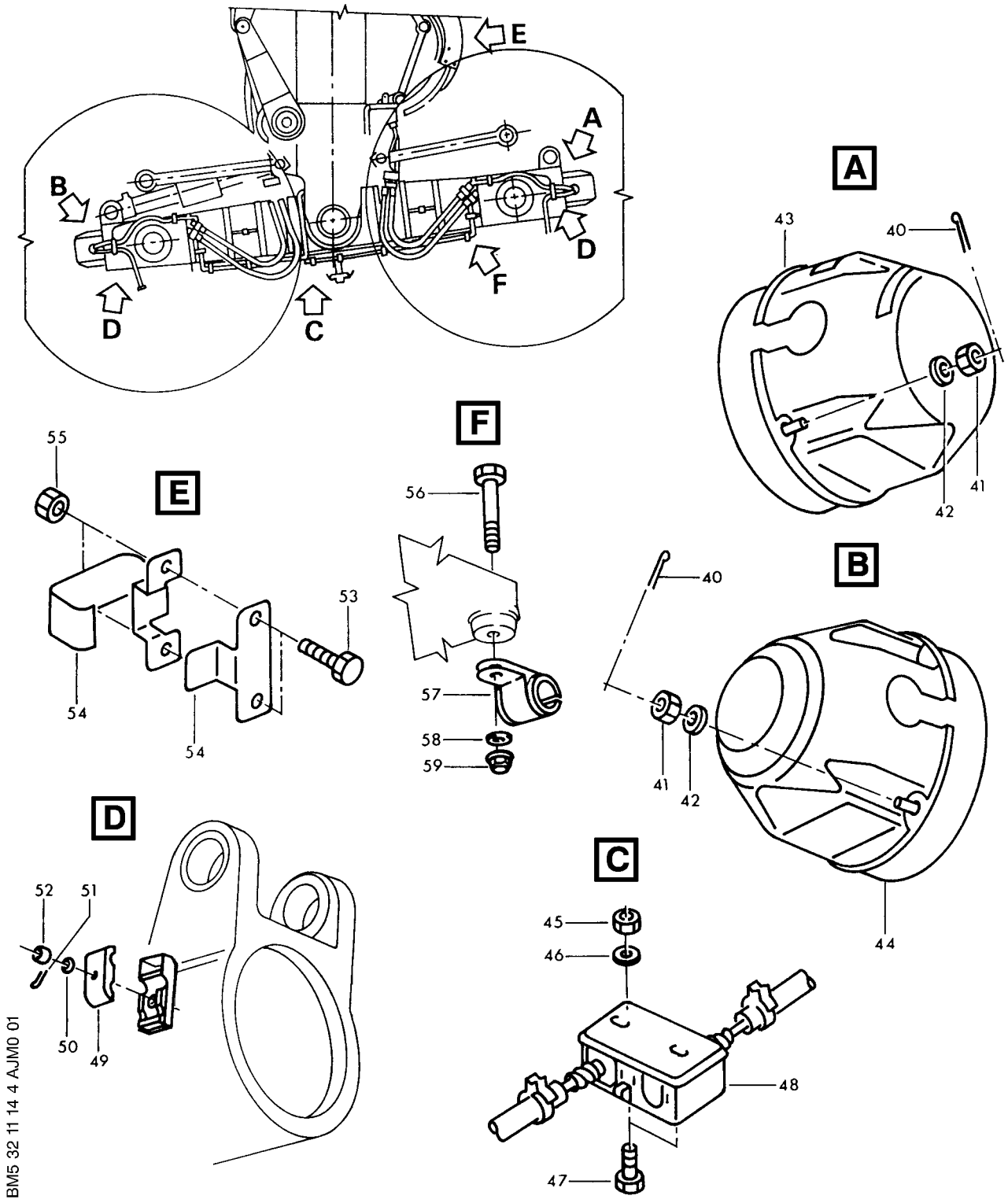
**ON A/C ALL

(n)Remove the four tachometers (Ref. 32-42-57, P. Block 401).
(2)Removal
(Ref. Fig. 401, 405)
(a)Remove casing (5).
1 Remove the three screws (3) and the three washers (4).
2 Remove the ten screws (1) and the ten washers (2).
3 Remove casing (5) and temporarily install removed component.
(b)Disconnect electrical harness at level of connections and cap electrical connectors.
(c)Remove cotter pins (40), nuts (41) and washers (42).

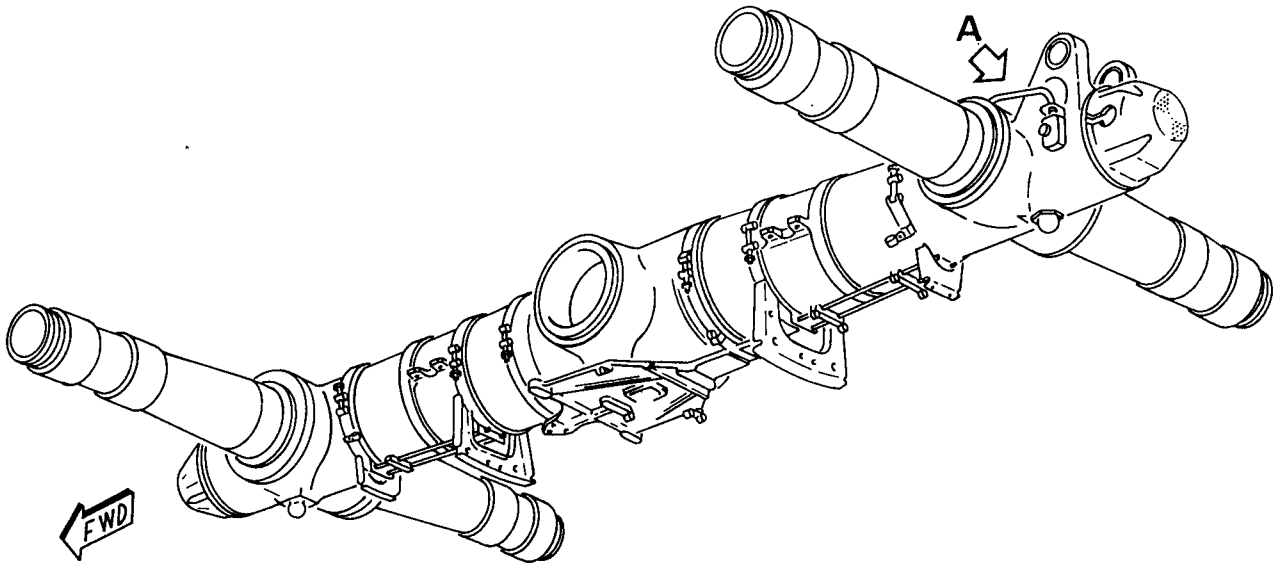
(d)Remove covers (43) and (44).
(e)Remove nuts (45), washers (46) and screws (47).
(f)Remove junction boxes (48).
(g)Remove cotter pins (51), washers (50) and nuts (52).
(h)Remove the two half-clamps (49).
(j)Remove the nuts (59), the washers (58) and the screws (56).
(k)Remove the clamps (57).
(l)Remove the screws (53) and the nuts (55).
(m)Remove the guides (54).
(n)Remove electrical harness from axles. Take care not to damage harness connections at level of supports (60).
(Ref. Fig. 406)

(3)Preparation of replacement component.
(a)Clean and check removed components
1 Clean all components with Material No. 11-002 and dry with filtered compressed air.
NOTE : Clean the attachment hardware with Material No. 11-004A and dry with filtered compressed air.
Apply a light coat of Material No. 05-047 to the threads of all nuts, screws, bolts and pins.
2 Check that all parts are in correct condition.
3 Replace all damaged components.
(b)General instructions for replacement of electrical harness.
1 Depreserve replacement electrical harness. Clean with Material No. 11-002 and dry with filtered compressed air.

(4)Installation
(Ref. Fig. 401, 405)
(a)Lay harness flat depending on installation direction.
(b)Insert harness through bogie beam ends then at 90° using lockwire in supports (60).
(Ref. Fig. 406)
(c)Engage electrical harness through removed guides and clamps.
(d)Install guides (54).
(e)Install screws (53), nuts (55) and tighten.
(f)Install clamp (57).
(g)Install screws (56), washers (58), nuts (59) and tighten.
(h)Install the two half clamps (49).
(j)Install washers (50), nuts (52) and tighten.
(k)Install new cotter pins and safety with lockwire.
(l)Install junction boxes (48).
(m)Install screws (47), washers (46), nuts (45) and tighten.
(n)Install covers (43) and (44).
(p)Install washers (42), nuts (41) and tighten.
(q)Install new cotter pins and safety with lockwire.
(r)Carefully remove all caps from connectors and connect electrical harness.
(s)Install casing (5).
1 Position casing, install ten washers (2) and screws (1).
2 Install three washers (4) and three screws (3).
Safety screws (3) with lockwire.
(t)Apply a bead of Material No. 09-001 on hardware (exposed parts of nuts



Main Landing Gear-Bogie Beam-Electrical Harness
Figure 405



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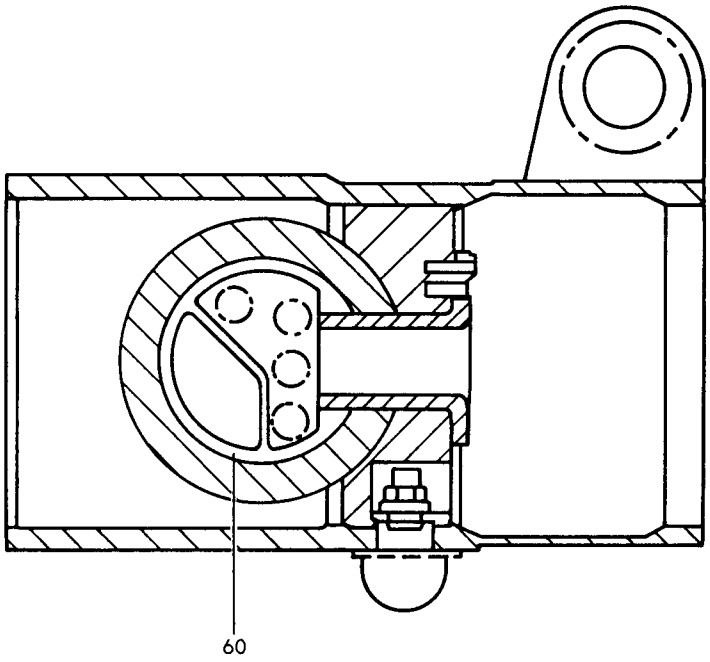

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Main Landing Gear-Bogie Beam-Electrical Harness-Support
Figure 406

and bolt heads).
(u)Install the four tachometers (Ref. 32-42-57, P. Block 401).

**ON A/C ALL

Post SB 32-2058 For A/C 101-200,

(v)Install the brake fans (Ref. 32-48-11, P. Block 401).
(w)Lubricate where applicable (Ref. 12-22-32, P. Block 1).

**ON A/C 101-200,

(v)Not applicable.
(w)Lubricate where applicable (Ref. 12-22-32, P. Block 1).

**ON A/C ALL

(5)Tests
(a)Carry out a normal braking operational test (Ref. 32-42-00, P. Block 501).
(b)Carry out a continuity test of proximity detectors (Ref. 32-00-00, P. Block 501).
(c)Carry out a brake system temperature operational test (Ref. 32-47-00, P. Block 501).

**ON A/C ALL

Post SB 32-2058 For A/C 101-200,

(d)Carry out a brake cooling operational test (Ref. 32-48-00, P. Block 501).
(6)Close-up
(a)Remove hydraulic fluid container.
(b)Make certain that working area is clean and clear of tools and miscellaneous items of equipment.
WARNING : MAKE CERTAIN AREA UNDER THE AIRCRAFT IS CLEAR.
(c)Remove safety stay STA4520 (FR85).
(d)Pressurize hydraulic reservoirs (Ref. 29-14-00, P. Block 301).

**ON A/C ALL

(e)Remove safety clips and tags and close circuit breakers 1GB, 2GB, 2GG, 41GG, 4GG, 42GG, 5GG, 98GG, 17GW, 1GW, 4GE.
WARNING : AFTER CLOSING CIRCUIT BREAKER 119GB, LOCATED ON PANEL 133VU, PERFORM APPROPRIATE PROCEDURE (REF. 32-00-00, P. BLOCK 501).
WARNING : MAKE CERTAIN THAT DOOR TRAVEL RANGES ARE CLEAR.
(f)Close main landing gear doors (Ref. 32-12-11, P. Block 301).
(g)Replenish hydraulic reservoirs as necessary (Ref. 12-12-29, P. Block 1).

(h)Remove warning notices.
(h)Close access doors, remove access platform and safety barriers.
(j)Remove all ground handling and maintenance equipment, standard and special tools, together with ground power and replenishing equipment, all access equipment and miscellaneous items.

R 1. Not Applicable

WARNING : CHECK THAT THE LANDING GEAR GROUND SAFETIES INCLUDING WHEEL CHOCKS ARE IN POSITION.
BEFORE APPLYING OR RELIEVING HYDRAULIC SYSTEM PRESSURE, MAKE CERTAIN THAT THE TRAVEL RANGES OF THE CONTROL SURFACES ARE CLEAR.
BEFORE PRESSURIZING HYDRAULIC SYSTEMS, CHECK THAT ALL CONTROLS ARE SET TO CORRESPOND WITH THE ACTUAL POSITION OF THE SERVICES THEY OPERATE.
BEFORE POWER IS SUPPLIED TO THE AIRCRAFT, MAKE CERTAIN THAT ELECTRICAL CIRCUITS UPON WHICH WORK IS IN PROGRESS ARE ISOLATED.
BEFORE PRESSURIZING HYDRAULIC SYSTEMS, MAKE CERTAIN THAT HYDRAULIC SYSTEM UNDER MAINTENANCE HAS BEEN ISOLATED.

1. Removal of a Pitch Damper with Fluid Level Indicator with Aircraft Jacked Up or on its Wheels

A. Reason for the Job
(1)Removal for checking fluid levels and topping up of fluid in the two chambers.
(2)Removal for replacement.

B. Equipment and Materials

	ITEM	DESIGNATION
	(1)H47002	Extractor
	(2)Material No. 04-004	Common Greases (Ref. 20-31-00)
R	(3)Material No. 04-022	Common Greases (Ref. 20-31-00)
R	(4)Material No. 05-047	Special Materials (Ref. 20-31-00)
R	(5)Material No. 09-013	Sealants (Ref. 20-31-00)
	Referenced Procedures	
	- 07-11-00, P. Block 1	Jacking for Aircraft Maintenance Operations
	- 07-12-00, P. Block 1	Jacking for Wheel Change
	- 12-12-32, P. Block 1	Landing Gear Replenishing
	- 12-22-32, P. Block 1	Landing Gear Lubrication
	- 12-37-32, P. Block 1	Wheel Replacement
	- 32-31-00, P. Block 501	Normal Extension and Retraction
	- 32-42-27, P. Block 401	Brake Unit

C. Procedure
(1)Job set-up
(a)Gradually discharge pitch damper nitrogen chamber.
(b)Jack up aircraft, wheels clear of ground (Ref. 07-11-00, P. Block 1) or jack up bogie beam at forward jacking point, forward wheels clear of ground (Ref. 07-12-00, P. Block 1).
(c)Remove inboard forward wheel concerned (Ref. 12-37-32, P. Block 1).
(d)Remove corresponding brake unit (Ref. 32-42-27, P. Block 401).
NOTE : Removal of wheel and brake is only necessary if extractor H 47002 is used.

(2)Removal

NOTE : Removal/installation procedure described below is for left pitch damper which is also shown in the figures.

CAUTION : DO NOT MOVE BOGIE BEAM AFTER DISCONNECTION OF PITCH DAMPER WIDE ANGLE DEFLECTION OF BOGIE BEAM COULD RESULT IN :
- DETERIORATION OF PROXIMITY SENSOR MOUNTS.
- SHEARING OF RIGID HYDRAULIC LINES AND ELECTRICAL CABLES.

(a)Disconnect pitch damper at bogie beam.
(Ref. Fig. 401)
1 Remove cotter pin (1), nut (2) and washer (7). Retain washer (7) for reinstallation.
2 Remove bolt (6) and washer (7). Retain washer (7) for reinstallation.
3 Using extractor, withdraw shaft (5) while preventing lateral movement of trunnion (3).

(b)Slide spacer (4) onto trunnion (3) then bring trunnion (3) and pitch damper to center of bogie beam fork fitting.

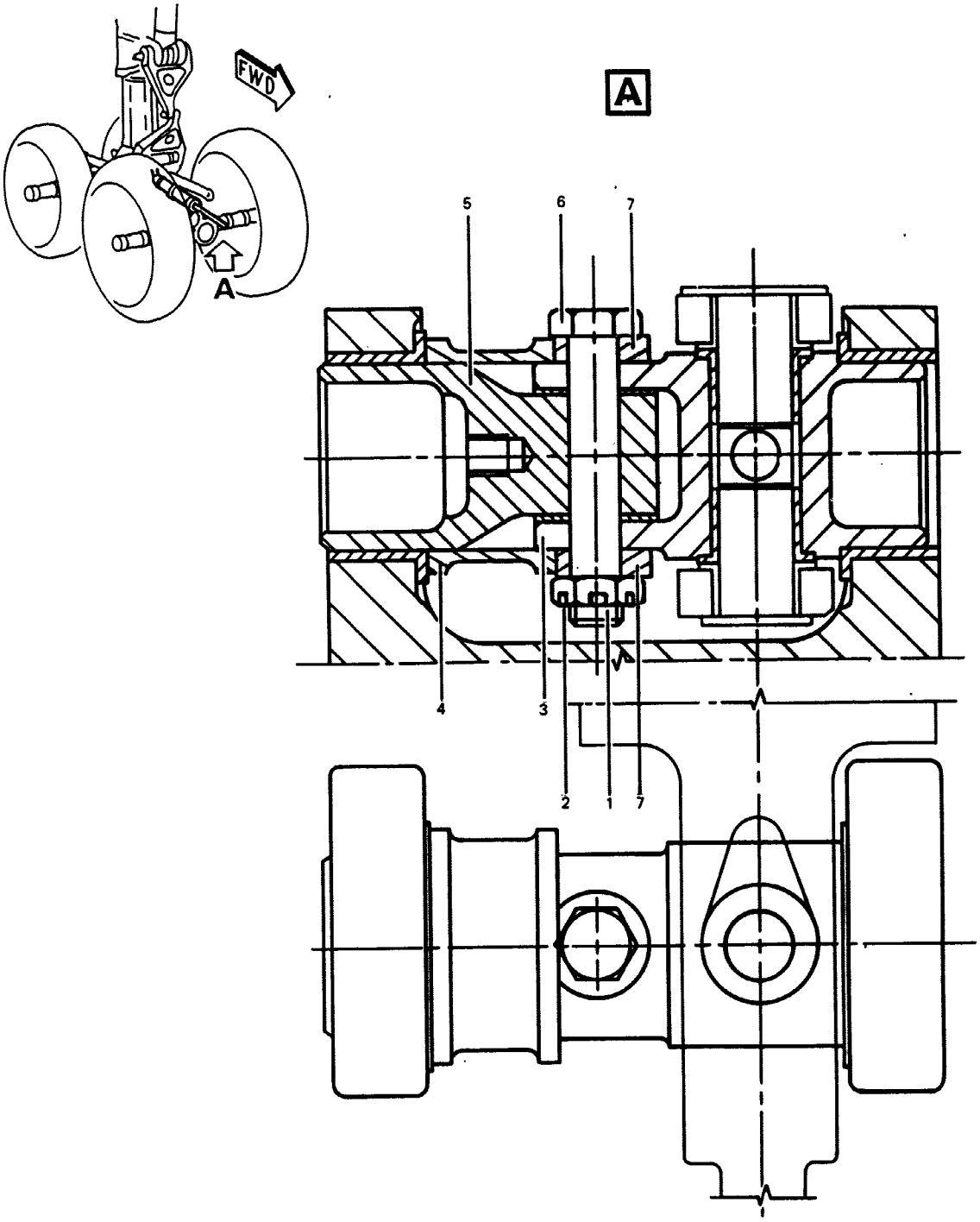
(c)Remove trunnion (3) (Ref. Fig. 401)
(Ref. Fig. 402)
1 Cut and remove lockwire and remove the two bolts (27), retain nuts (25) and washers (26) retain locking plate (23) and remove indicator tube (24).
2 Fold back tabs of lockplates (20) and remove screws (21), lockplates (20) and half pins (22).
3 Remove trunnion (3) and temporarily install parts (22), (21), (20), (25), (26) and (27) on pitch damper.

(d)Temporarily install parts (3), (4), (5), (7), (6), (2) and (1) on bogie beam and parts (15), (16), (14), (13), (12) and (11) on shock absorber.

(e)Disconnect pitch damper at shock absorber.
(Ref. Fig. 403).
1 Remove lubricator (16) with its washer.
2 Remove cotter pin (14), nut (13), washer (12) and bolt (11)
3 Lift pitch damper.
4 Extract shaft (15) from underneath and disconnect pitch damper.

(3)Preparation of replacement component
(a)Make certain that all parts are clean and visually inspect for correct condition.
(b)Fully discharge nitrogen chamber.
(c)Remove temporarily installed parts.

(4)Installation
(a)Install trunnion (3) on pitch damper (Ref. Fig. 403, 402)
1 Position trunnion (3) and install the two half pins (22). Secure half pins (22) with screws (21) equipped with lockplates (20). Safety screws (21) with lockplates (20).
2 Position indicator tube (24), locking plate (23) and install bolts (27), washers (26) and nuts (25). Wirelock bolts (27).
NOTE : The indicator housing sub-assembly must be positioned as follows : the smaller slot must be above (on the plug side) to prevent the ingress of particles into the housing, which could hinder or prevent the component from operating, and the larger slot must be directed downwards to prevent moisture retention and allow fine particles to come out more easily.



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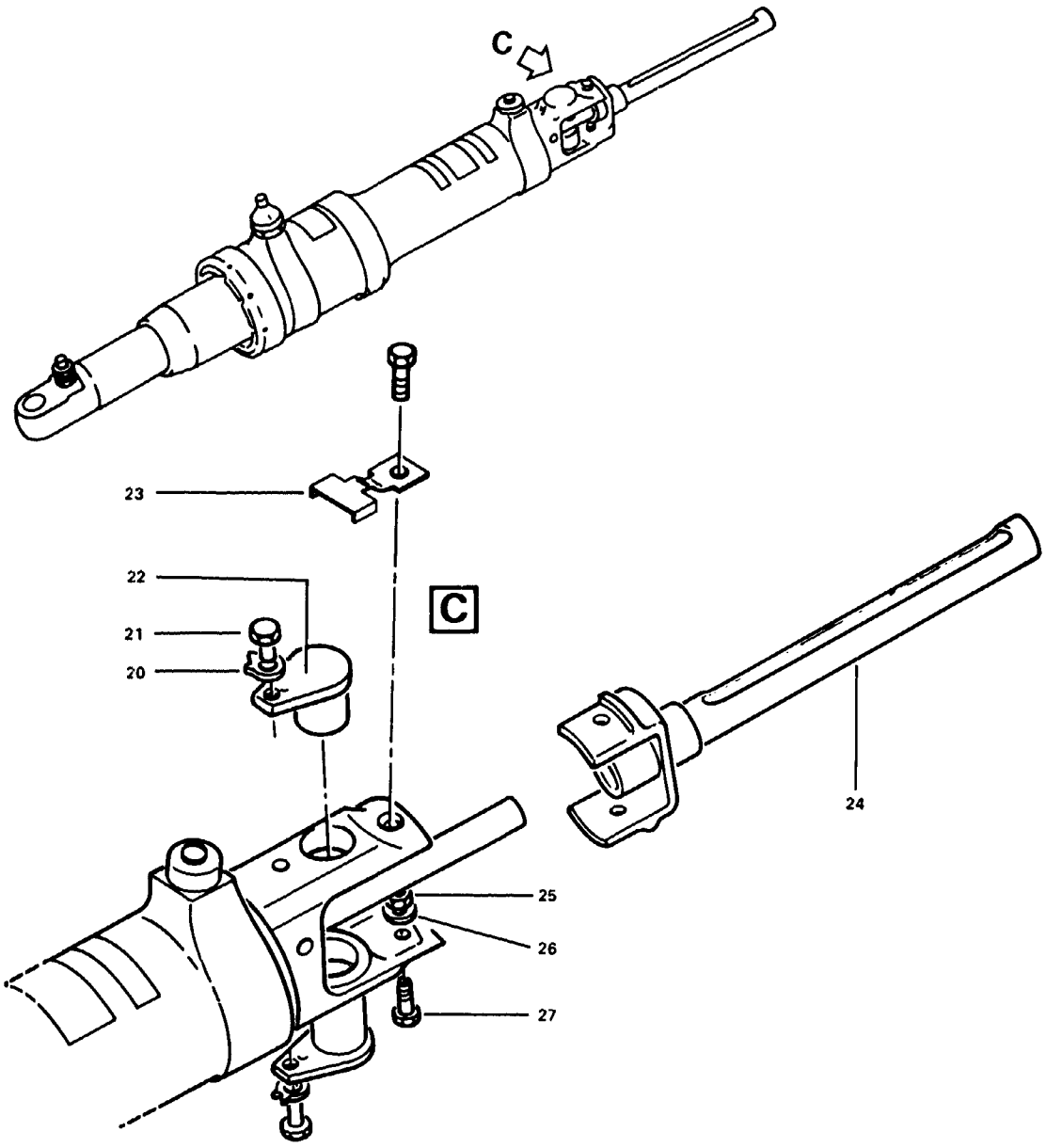
Pitch Damper-to-Bogie Beam Attachment
Figure 401



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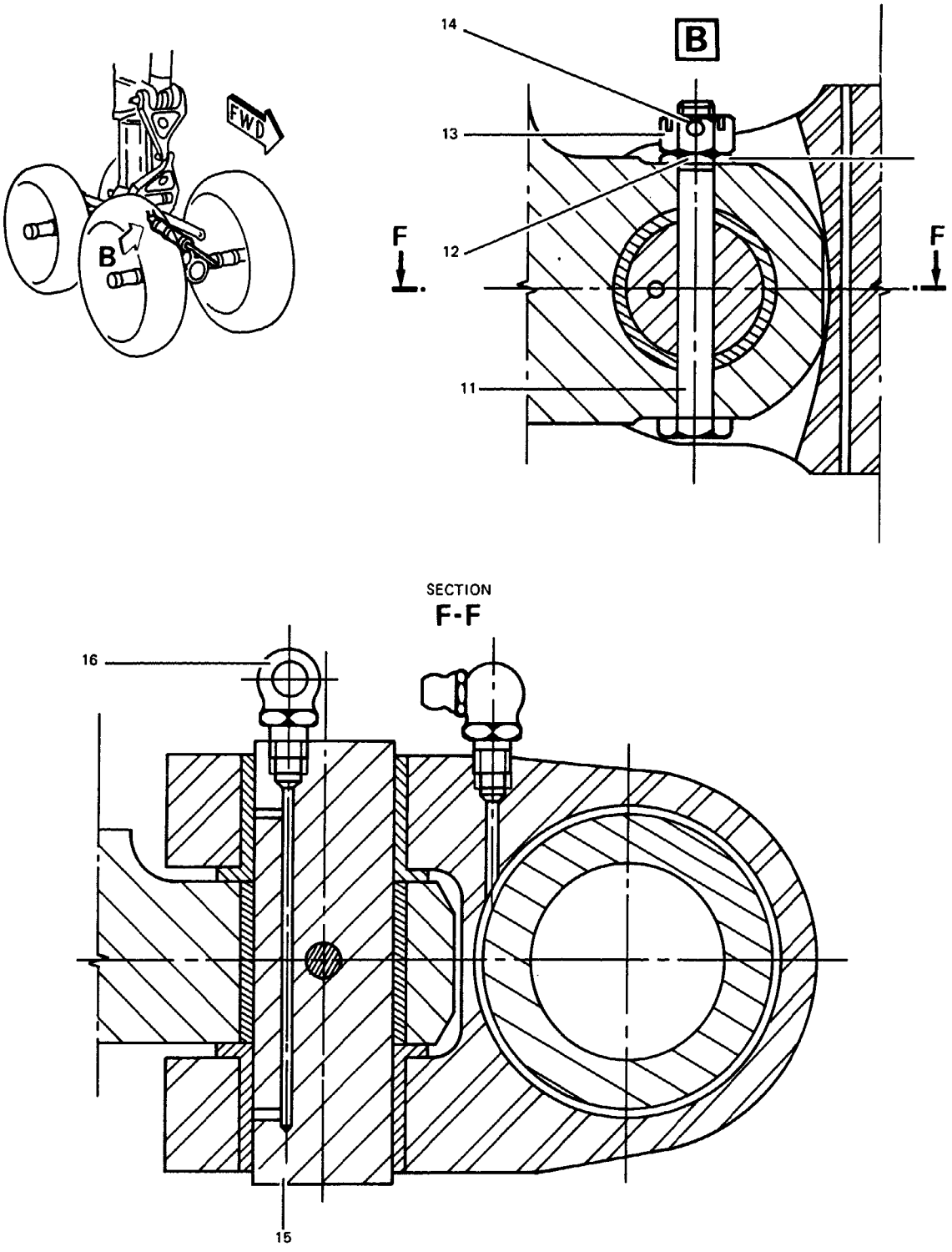
Removal of Trunnion
Figure 402



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Pitch Damper-to-Shock Absorber Attachment
Figure 403

(b)Connect pitch damper at shock absorber (Ref. Fig. 403).
1 Insert shaft (15) from underneath into universal joint fork fitting and pitch damper end fitting.
2 Align holes for bolt (11) in shaft (15) and pitch damper end fitting. Install bolt (11), washer (12), nut (13) and safety nut (13) with cotter pin (14).
NOTE : Make certain that bolt (11) is correctly positioned. Maintain pitch damper up to facilitate installation.
3 Install lubricator (16) equipped with its washer on shaft (15).
(c)Connect pitch damper at bogie beam (Ref. Fig. 401).
R 1 Apply Material No. 04-004 or Material No. 04-022 to end sections of
R spacer (4) and trunnion (3), then install trunnion in fork fitting of
R bogie beam.
R NOTE : Do not mix Material No. 04-004 with Material No. 04-022.
R You can use Material No. 04-022 as an alternative to
R Material No. 04-004. Clean and degrease the parts before you
R use Material No. 04-022.
2 Apply Material No. 05-047 to the cavities between shaft (5), trunnion (3) and spacer (4). Position shaft (5) and align bores for bolt (6).
NOTE : Compress or extend pitch damper to adjust length for installation of trunnion in bogie beam. Nitrogen charging valve on pitch damper must be open during length adjustment.
3 Position spacer (4) and the two washers (7) and install bolt (6) and nut (2). TORQUE nut (2) to between 3.6 and 4.8 m.daN (26 and 35 lbf.ft) and safety nut (2) with cotter pin (1).
(5)Close-up
(a)Apply Sealants (Material No. 09-013) to attaching hardware and heads of half pins (22).
(b)Install brake unit and wheel previously removed (Ref. 32-42-27, P. Block 401 and Ref. 12-37-32, P. Block 1).
(c)Charge pitch damper nitrogen chamber (Ref. 12-12-32, P. Block 1).
(d)Lower the aircraft onto its wheels (Ref. 07-11-00, P. Block 1 or 07-12-00, P. Block 1).

WARNING : CHECK THAT THE LANDING GEAR GROUND SAFETIES INCLUDING WHEEL CHOCKS ARE IN POSITION.

BEFORE APPLYING OR RELIEVING HYDRAULIC SYSTEM PRESSURE, MAKE CERTAIN THAT THE TRAVEL RANGES OF THE CONTROL SURFACES ARE CLEAR.

BEFORE PRESSURIZING HYDRAULIC SYSTEMS, CHECK THAT ALL CONTROLS ARE SET TO CORRESPOND WITH THE ACTUAL POSITION OF THE SERVICES THEY OPERATE.

BEFORE PRESSURIZING HYDRAULIC SYSTEMS, MAKE CERTAIN THAT HYDRAULIC SYSTEM UNDER MAINTENANCE HAS BEEN ISOLATED.

BEFORE POWER IS SUPPLIED TO THE AIRCRAFT, MAKE CERTAIN THAT ELECTRICAL CIRCUIT UPON WHICH WORK IS IN PROGRESS IS ISOLATED.

1. Equipment and Materials

	ITEM	DESIGNATION
	A. 98A32101508000	Clamp - Hoisting
	B.	Mini-lift
	C. C47248	Cone
	D. F47529	Extractor
	E. F47751	Guide Cone
	F. H21815	Handling Fixture
	G. H21825	Extractor
	H.	Hoisting Equipment - Standard
	J.	Access Platform 2 m 60 (8 ft 7 in)
	K.	Warning Notice
	L.	Safety Barriers
	M.	Circuit Breaker Safety Clips
	N. Material No. 04-004	Common Greases (Ref. 20-31-00)
R	P. Material No. 04-022	Common Greases (Ref. 20-31-00)
R	Q. Material No. 05-047	Special Materials (Ref. 20-31-00)
R	R. Material No. 11-002	Cleaning Agents (Ref. 20-31-00)
R	S. Material No. 11-004A	Cleaning Agents (Ref. 20-31-00)
	Referenced Procedures	
	- 07-11-00, P. Block 1	Jacking for Aircraft Maintenance Operations
	- 12-12-29, P. Block 1	Hydraulics
	- 29-10-00, P. Block 301	Main Hydraulic Power - Pressurization/ Depressurization
	- 29-14-00, P. Block 301	Hydraulic Reservoir Pressurizing System
	- 32-11-17, P. Block 401	Lock Link Assembly
	- 32-11-19, P. Block 401	Locking Spring
	- 32-12-11, P. Block 301	Main Gear Main Door - (Ground Door(s) Opening)
	- 32-12-15, P. Block 401	Landing Gear Cylinder Door
	- 32-31-00, P. Block 501	Normal Extension and Retraction
	- 32-31-55, P. Block 401	Actuating Cylinder - Brace Strut

2. Procedure

A. Job Set-up
(1)On panel 4VU
- make certain that landing gear control lever is in **DOWN** position and prohibit its operation by displaying a warning notice.

(2)Between the First Officer's and Third Occupant's seats
- make certain that landing gear Free Fall extension control handle is in Normal position.

(3)Position access platform.
(4)Position safety barriers prohibiting access to gear door travel ranges.
WARNING : MAKE CERTAIN THAT THE DOOR TRAVEL RANGES ARE CLEAR.
(5)Open main gear doors (Ref. 32-12-11, P. Block 301)
WARNING : WHEN DOORS ARE OPEN MAKE CERTAIN THAT SAFETY COLLARS ARE POSITIONED ON DOOR ACTUATING CYLINDERS.
(6)Depressurize Green system (Ref. 29-10-00, P. Block 301) and prohibit its pressurization by displaying a warning notice
- on Green hydraulic system ground connectors.
- on panel 427VU, to prohibit operation of Green electric pumps (**ELEC PUMPS** pushbutton switch).

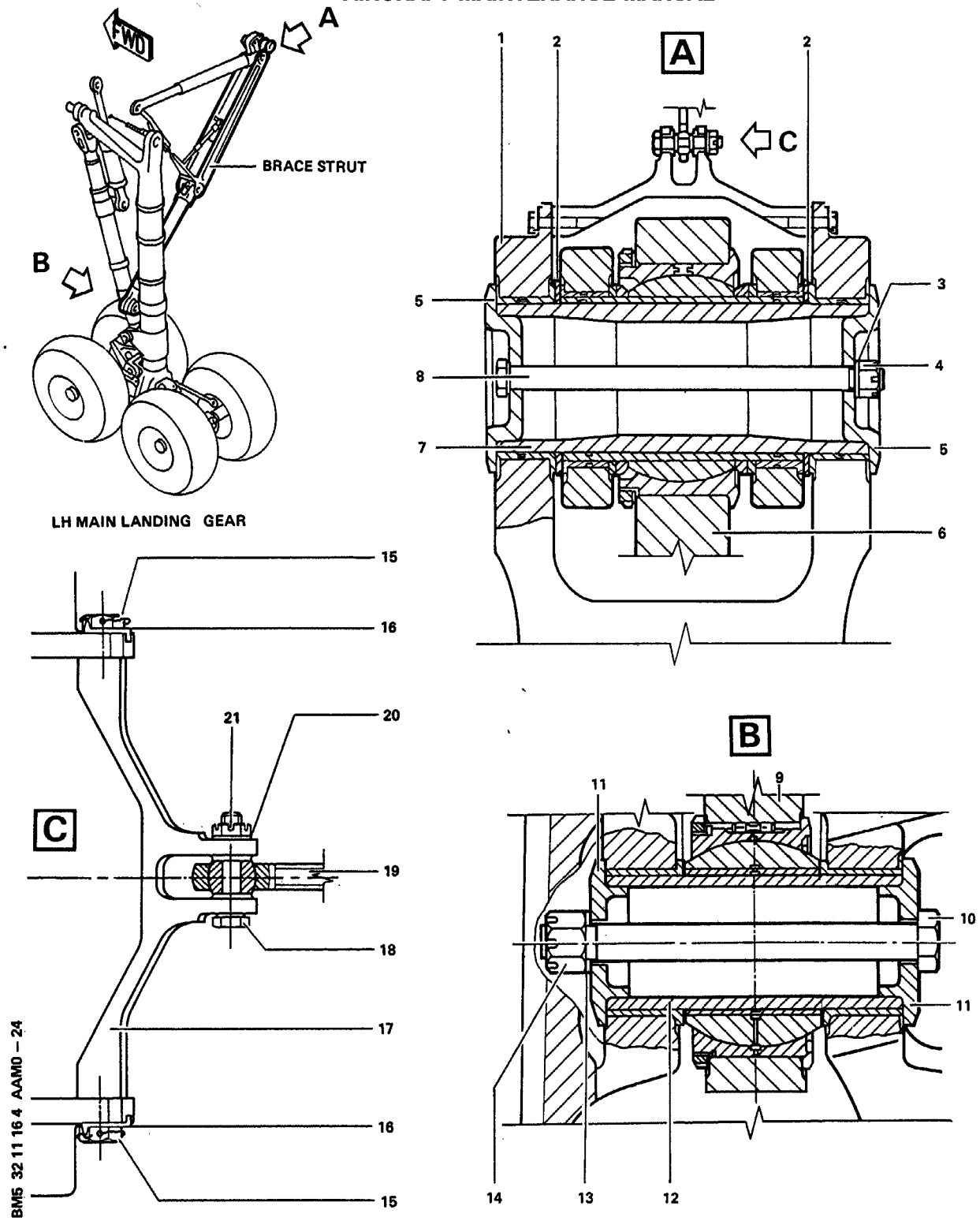
(7)Depressurize Green hydraulic reservoir (Ref. 29-14-00, P. Block 301) and prohibit its pressurization by displaying a warning notice
- on panel 429VU, to prohibit APU starting.
- on Green hydraulic system ground connectors.

(8)Jack up aircraft, wheels clear of ground (Ref. 07-11-00, P. Block 1).
(9)Position hydraulic fluid container.
(10)Remove locking springs (Ref. 32-11-19, P. Block 401).
(11)Remove brace strut actuating cylinder (Ref. 32-31-55, P. Block 401).
(12)Mark position of hydraulic lines and disconnect them. Install blanking plugs/caps on disconnected line ends.
(13)Disconnect lock link assembly lower part from brace strut and install handling fixture H21815 on brace strut.
(14)Remove lock unit assembly (Ref. 32-11-17, P. Block 401).
(15)Install hoisting equipment 98A3210150800.
(16)Connect brace strut hoisting equipment to positioning adapter with minilift cable.
(17)Disconnect cylinder door at lower hinges (Ref. 32-12-15, P. Block 401).

B. Removal
(Ref. Fig. 401)
(1)Disconnect brace strut from uplock mechanism link rod (19).
(a)Remove cotter pin. Remove nut (21) and washer (20).
(b)Remove bolt (18).
(c)Disengage link rod (19) from brace strut support fitting (17).

(2)Disconnect lower end (9) of brace strut from hinge on shock strut.
(a)Remove cotter pin. Remove nut (14), washer (13), end caps (11) and bolt (10).
(b)Drive out hollow shaft (12) using extractor F47529.
(c)Disengage lower end (9) of brace strut from hinge on shock strut.

(3)Remove support fitting (17) from brace strut.
(a)Cut and remove lockwire (15).



Brace Strut - Removal/Installation
Figure 401

(b)Remove bolts (15).
(c)Discard lock washers (16).
(4)Disconnect upper part (1) of brace strut from multiple clevis (6).
WARNING : SUPPORT DISCONNECTED BRACE STRUT TO AVOID TILT DOWN.
(a)Remove cotter pin. Remove nut (4) and retain washer (3).
(b)Remove tie bolt (8) and end caps (5).
(c)Mark position of washers (2).
(d)Remove hollow pin (7) using extractor H21825.
(e)Disengage upper part (1) of brace strut from multiple clevis (6). Retain washers (2).
(f)Disengage and remove brace strut using hoisting equipment.
(g)Remove handling fixture H21815.

C. Preparation of Replacement Component
(1)Make certain that all parts to be installed are clean and in correct condition.
NOTE : Clean the attachment hardware with Material No. 11-004A and dry with filtered compressed air.
Apply a light coat of Material No. 05-047 to the threads of all nuts, screws, bolts and pins.
R (2)Lightly coat bores of brace strut with grease Material No. 04-004 or
R Grease Material No. 04-022.
R NOTE : Do not mix Material No. 04-004 with Material No. 04-022.
R You can use Material No. 04-022 as an alternative to
R Material No. 04-004. Clean and degrease the parts before you use
R Material No. 04-022.
- Replace all worn or defective parts.

D. Installation
(1)Install handling fixture H21815 on replacement brace strut and position brace strut for installation using hoisting equipment and minilift.
(2)Connect upper part (1) of brace strut to multiple clevis (6).
(a)Using handling fixture H21815 position brace strut fork fitting (1) to either side of multiple clevis link rod (6)/cross brace pin.
(b)Line up bores and install washers (2).
(c)Install hollow pin (7) using guide cone F47751.
(d)Install the two end caps (5), tie bolt (8) and washer (3).
(e)Install nut (4). TORQUE to between 6 and 7 m.daN (44.25 and 51.62 lbf ft). Safety with cotter pin.
(3)Connect brace strut support fitting (17) on to uplock mechanism link rod.
(a)Position support fitting (17) on brace strut fork fitting.
(b)Install bolts (15) equipped with lock washers (16).
(c)Wirelock bolt (15).
(d)TORQUE bolts (15) to between 0.85 and 1.0 m.daN (75 to 90 lbf. in.). Fold back tabs of lock washers.
(e)Position link rod (19) spherical bearing in support fitting (17).
(f)Align bores and install bolt (18).
(g)Install washer (20) and nut (21). TORQUE to between 0.6 and 0.75 m.daN (53.10 and 66.38 lbf. in.). Safety with cotter pin.
(4)Connect lower part of brace strut to hinge on shock strut.
(a)Line up bores in brace strut (9), drag strut and shock strut fittings.

(b)Install hollow pin (12).
(c)Install end caps (11), bolt (10) and washer (13).
(d)Install nut. TORQUE to between 20.5 and 24 m.daN (151.2 and 177 lbf. ft). Safety with cotter pin.
(5)Install slings on brace strut to facilitate its installation.
(6)Remove handling fixture H21815.
(7)Install lock link assembly (Ref. 32-11-17, P. block 401).
(8)Remove slings from brace strut.
(9)Install brace strut actuating cylinder (Ref. 32-31-55, P. Block 401).
(10)Install locking springs (Ref. 32-11-19, P. Block 401).
(11)Connect cylinder door at lower hinges (Ref. 32-12-15, P. Block 401).

E. Tests
(1)Carry out Normal gear retraction and extension functional test (Ref. 32-31-00, P. Block 501).

F. Close-Up
(1)Remove hydraulic fluid container.
(2)Make certain that working area is clean and clear of tools and miscellaneous items of equipment.
WARNING : MAKE CERTAIN AREA UNDER THE AIRCRAFT IS CLEAR
(3)Lower the aircraft onto its wheels (Ref. 07-11-00, P. Block 1).
(4)Pressurize Green hydraulic reservoir (Ref. 29-14-00, P. Block 301).
WARNING : MAKE CERTAIN THAT THE DOOR TRAVEL RANGES ARE CLEAR
(5)Close main landing gear doors (Ref. 32-12-11, P. Block 301).
(6)Replenish hydraulic reservoirs if necessary (Ref. 12-12-29, P. Block 1).
(7)Remove warning notices.
(8)Close access doors, remove access platform and safety barriers.
(9)Remove all ground handling and maintenance equipment, standard and special tools, together with ground power and replenishing equipment, all access equipment and miscellaneous items.

WARNING : CHECK THAT THE LANDING GEAR GROUND SAFETIES INCLUDING WHEEL CHOCKS ARE IN POSITION.
BEFORE APPLYING OR RELIEVING HYDRAULIC SYSTEM PRESSURE, MAKE CERTAIN THAT THE TRAVEL RANGES OF THE CONTROL SURFACES ARE CLEAR.
BEFORE PRESSURIZING HYDRAULIC SYSTEMS, CHECK THAT ALL CONTROLS ARE SET TO CORRESPOND WITH THE ACTUAL POSITION OF THE SERVICES THEY OPERATE.
BEFORE PRESSURIZING HYDRAULIC SYSTEMS, MAKE CERTAIN THAT HYDRAULIC SYSTEM UNDER MAINTENANCE HAS BEEN ISOLATED.
BEFORE POWER IS SUPPLIED TO THE AIRCRAFT, MAKE CERTAIN THAT ELECTRICAL CIRCUIT UPON WHICH WORK IS IN PROGRESS ARE ISOLATED.

1. Check of Fits and Clearances and Wear Limits at Brace Strut Level

A. Reason for the Job
Check of fits and clearances and wear limits at the various hinges (upper hinge - center hinge and lower hinge).

B. Equipment and Materials

ITEM	DESIGNATION
(1)	Warning Notices
(2)	Access Platform 2.60 m (8 ft. 7 in.)
(3)	Safety Barriers
Referenced Procedures	
- 07-11-00, P. Block 1	Lifting and Jacking
- 12-12-29, P. Block 1	Hydraulics
- 29-10-00, P. Block 301	Pressurization (Depressurization)
- 29-14-00, P. Block 301	Hydraulic Tank - Pressurization/ Depressurization
- 32-12-11, P. Block 301	Main Gear Main Door - (Ground Door(s) Opening)

C. Procedure
(1)Job set-up
(a)On panel 4VU
- make certain that landing gear normal control lever is in DOWN position and prohibit its operation by displaying a warning notice
(b)Between the First Officer's and Flight Engineer's seats :
- make certain that landing gear Free Fall extension handle is in normal position (1235).
(c)Position access platform
(d)Position safety barriers prohibiting access to gear door travel ranges
WARNING : MAKE CERTAIN THAT THE DOOR TRAVEL RANGES ARE CLEAR
(e)Open main gear doors (Ref. 32-12-11, P. Block 301)
WARNING : WHEN DOORS ARE OPEN MAKE CERTAIN THAT SAFETY COLLARS ARE POSITIONED ON DOOR ACTUATING CYLINDERS
(f)Depressurize Green Hydraulic system (Ref. 29-10-00, P. Block 301) and prohibit its pressurization by displaying a warning notice.

- on Green hydraulic system ground connectors
- on panel 427VU, on Green ELEC PUMPS control switches.

(g)Depressurize yellow hydraulic system (Ref. 29-10-00, P. Block 301) and prohibit its pressurization by displaying a warning notice

R - on panel 429VU to prohibit APU starting
- on hydraulic reservoir pressurization connector.

(h)Jack up aircraft wheels clear of ground (Ref. 07-11-00, P. Block 301)

(2)Check of fits and clearances (Ref. Fig. 601)

(a)Check of fits and clearances at upper hinge (Ref. Fig. 601) (Detail A).

1 Measure clearance J1 between bushing (4) and chamfered bushing (5).
Move bushing (4) against cross brace (7) then push chamfered bushing (5) against multiple clevis (6) then multiple clevis on cross brace.
Measure clearance J1 between bushing (4) and chamfered bushing (5).
NOTE : Check that clearance J1 is lower than 0.8 mm (0.031 in.).

2 Measure clearance J2 between adjustment washer (2) and shouldered bushing (3).
- Move cross brace (7) on brace strut (8) then move shouldered bushing (1) against cross brace with adjustment washer (2).
- Move shouldered bushing (3) on brace strut (8) in a direction opposite to the one in the preceding step.
- Measure clearance J2 between adjustment washer (2) and shouldered bushing (3).

NOTE : Check that clearance J2 is lower than 0.4 mm (0.015 in.).

(b)Check of fits and clearances at center hinge (Ref. Fig.) Detail B

1 Measure clearance J3 between adjustment washer (9) and shouldered bushing (12).
- Move lower arm (13) against upper arm (11) then upper arm against end cap (14).
- Move adjustment washer (9) against shouldered bushing (10) and place it against upper arm (11).
- Measure clearance J3 between adjustment washer (9) and shouldered bushing (12).

NOTE : Check that clearance J3 is lower than 0.5 mm (0.019 in.)

(c)Check of fits and clearances at lower hinge (Ref. Fig.) Detail C.

1 Measure clearance J4 between the two shouldered bushings (16) and (17).
- Move brace strut (8) and shouldered bushing (17) against shouldered bushing (18).
- Move shouldered bushing (16) against shock strut (15)
- Measure clearance J4 between the two shouldered bushings (16) and (17).

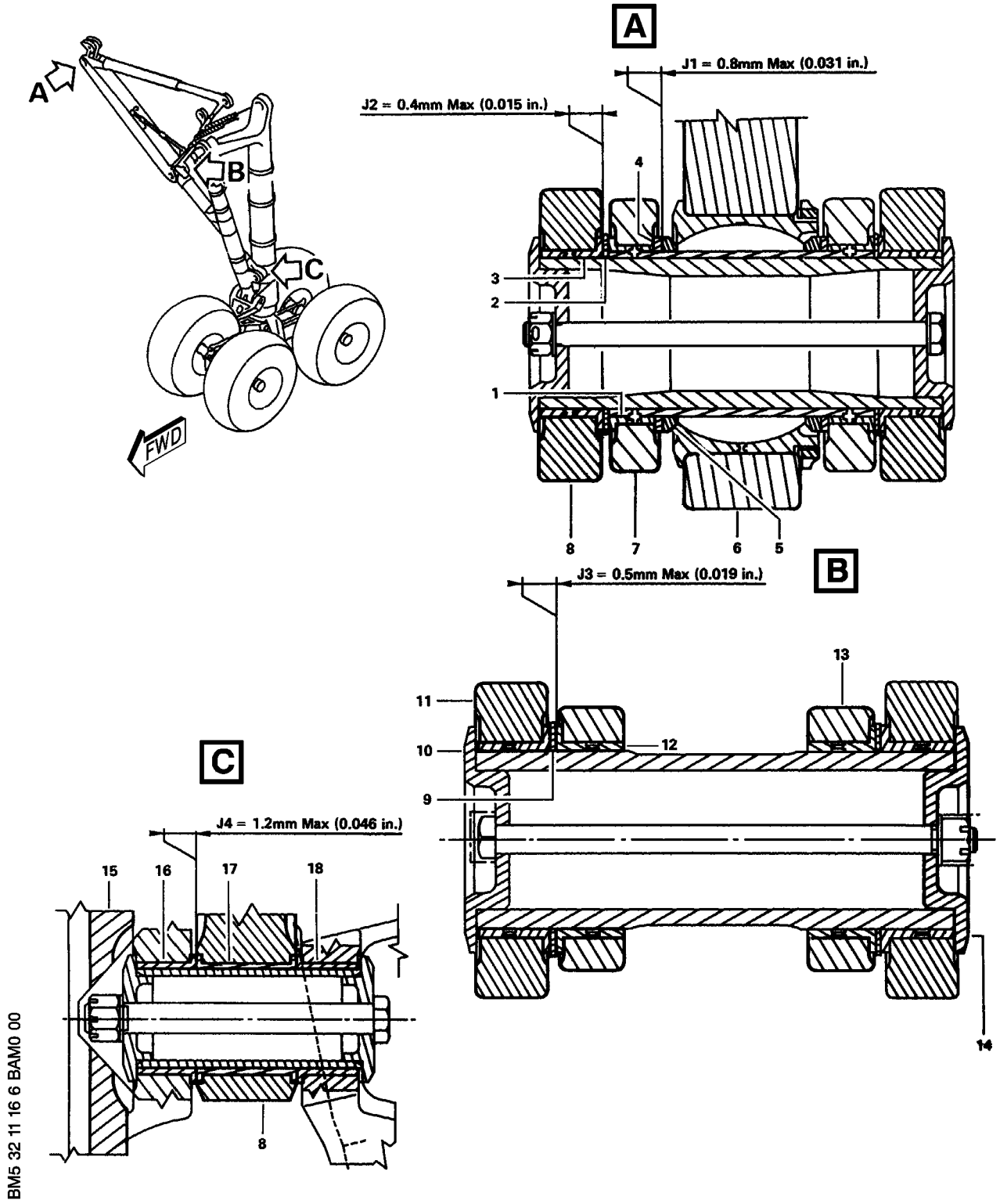
NOTE : Check that clearance J4 is lower than 1.2 mm (0.046 in.).

D. Close-Up

(1)Make certain that working area is clean and clear of tools and miscellaneous items of equipment
WARNING : MAKE CERTAIN THAT AREA UNDER THE AIRCRAFT IS CLEAR

(2)Lower the aircraft onto its wheels (Ref. 07-11-00, P. Block 1)

(3)Pressurize Green hydraulic tank (Ref. 29-14-00, P. Block 301)
WARNING : MAKE CERTAIN THAT THE DOOR TRAVEL RANGES ARE CLEAR
(4)Close main landing gear doors (Ref. 32-12-11, P. Block 301)
(5)Replenish hydraulic tanks if necessary (Ref. 12-12-29, P. Block 1)
(6)Remove warning notices
(7)Close access doors, remove access platform and safety barriers.
(8)Remove all ground handling and maintenance equipment, standard and special tools, together with ground power and replenishing equipment, all access equipment, and miscellaneous items.



Brace Strut - Inspection/Check
Figure 601

LOCK LINK ASSEMBLY - REMOVAL/INSTALLATION

WARNING : CHECK THAT THE LANDING GEAR GROUND SAFETIES INCLUDING WHEEL CHOCKS ARE IN POSITION.
BEFORE APPLYING OR RELIEVING HYDRAULIC SYSTEM PRESSURE, MAKE CERTAIN THAT THE TRAVEL RANGES OF THE CONTROL SURFACES ARE CLEAR.
BEFORE PRESSURIZING HYDRAULIC SYSTEMS, CHECK THAT ALL CONTROLS ARE SET TO CORRESPOND WITH THE ACTUAL POSITION OF THE SERVICES THEY OPERATE.
BEFORE POWER IS SUPPLIED TO THE AIRCRAFT, MAKE CERTAIN THAT ELECTRICAL CIRCUITS UPON WHICH WORK IS IN PROGRESS ARE ISOLATED.
BEFORE PRESSURIZING HYDRAULIC SYSTEMS, MAKE CERTAIN THAT HYDRAULIC SYSTEM UNDER MAINTENANCE HAS BEEN ISOLATED.

1. Equipment and Materials

	ITEM	DESIGNATION
	A. H21828	Extractor
	B. H21830	Extractor
	C. C47248	Cone
	D. D22333000	MLG Ground Safety Lock
	E.	Warning Notice
	F.	Access Platform 2.60 m (8 ft. 7 in.)
	G.	Safety Barriers
	H.	Circuit Breaker Safety Clips
	J. Material No. 04-004	Common Greases (Ref. 20-31-00)
R	K. Material No. 04-022	Common Greases (Ref. 20-31-00)
R	L. Material No. 05-047	Special Materials (Ref. 20-31-00)
R	M. Material No. 09-013A	Sealants (Ref. 20-31-00)
R	N. Material No. 11-002	Cleaning Agents (Ref. 20-31-00)
R	P. Material No. 11-004A	Cleaning Agents (Ref. 20-31-00)
	Referenced Procedures	
	- 07-11-00, P. Block 1	Jacking for Aircraft Maintenance Operations
	- 29-10-00, P. Block 301	Main Hydraulic Power - Pressurization/ Depressurization
	- 29-14-00, P. Block 301	Hydraulic Reservoir Pressurizing System
	- 32-00-00, P. Block 401	Landing Gear
	- 32-00-00, P. Block 501	Landing Gear
	- 32-11-19, P. Block 401	Locking Springs
	- 32-12-11, P. Block 301	Main Gear Main Door - (Ground Door(s) Opening)
	- 32-31-00, P. Block 501	Normal Extension and Retraction
	- 32-31-55, P. Block 401	Brace Strut Actuating Cylinder
	- 32-33-00, P. Block 501	Free Fall Extension

2. Procedure

A. Job Set-Up
(1)On panel 4VU
- make certain that landing gear control lever is in **DOWN** position and prohibit its operation by displaying a warning notice.

(2)Between First Officer's and Third Occupant's seats
- make certain that landing gear Free Fall extension control handle is in Normal position.

(3)Open, safety and tag the following circuit breakers :
WARNING : PRIOR TO OPENING CIRCUIT BREAKER 119GB LOCATED ON PANEL 133VU, TAKE THE APPROPRIATE SAFETY MEASURES (REF. 32-00-00, P. BLOCK 501).

PANEL	SERVICE	IDENT.	LOCATION
133VU	HYDRAULIC/L/G PROX DET/& RELAYS SYS 2/ GEAR DOWN &/OVHD PNL/POS IND	83GB	331/V51
133VU	HYDRAULIC/L/G PROX DET/& RELAYS SYS 2/ FLT/GND	1GB	331/V52
133VU	HYDRAULIC/L/G PROX DET/& RELAYS SYS 1/ RELAYS & /RETRACT/CTL	2GB	332/U51
133VU	HYDRAULIC/L/G PROX DET/& RELAYS SYS 1/ FLT/GND	119GB	332/U52
133VU	HYDRAULIC/L/G PROX DET/& RELAYS SYS 1/ GEAR DN &/CTR PNL/POS IND	3GB	332/U53

(4)Position access platform.

(5)Position safety barriers prohibiting access to gear door travel ranges.
WARNING : MAKE CERTAIN THAT THE DOOR TRAVEL RANGES ARE CLEAR.

(6)Open main gear doors (Ref. 32-12-11, Page Block 301).
WARNING : WHEN DOORS ARE OPEN MAKE CERTAIN THAT SAFETY COLLARS ARE POSITIONED ON DOOR ACTUATING CYLINDERS.

(7)Depressurize Green hydraulic system (Ref. 29-10-00, P. Block 301) and prohibit its pressurization by displaying a warning notice :
- on Green hydraulic system ground connectors
- on panel 427VU to prhohibit operation of Green electric pumps (ELEC PUMPS pushbutton switch).

(8)Depressurize Green hydraulic reservoir (Ref. 29-14-00, P. Block 301) and prohibit its pressurization by displaying a warning notice :
- on panel 429VU to prohibit APU starting
- on reservoir pressurization connector.

(9)Jack up the aircraft, wheels clear of ground (Ref. 07-11-00, P. Block 1).

(10)Disconnect locking springs from their attachments on the lock link assembly (Ref. 32-11-19, P. Block 401).

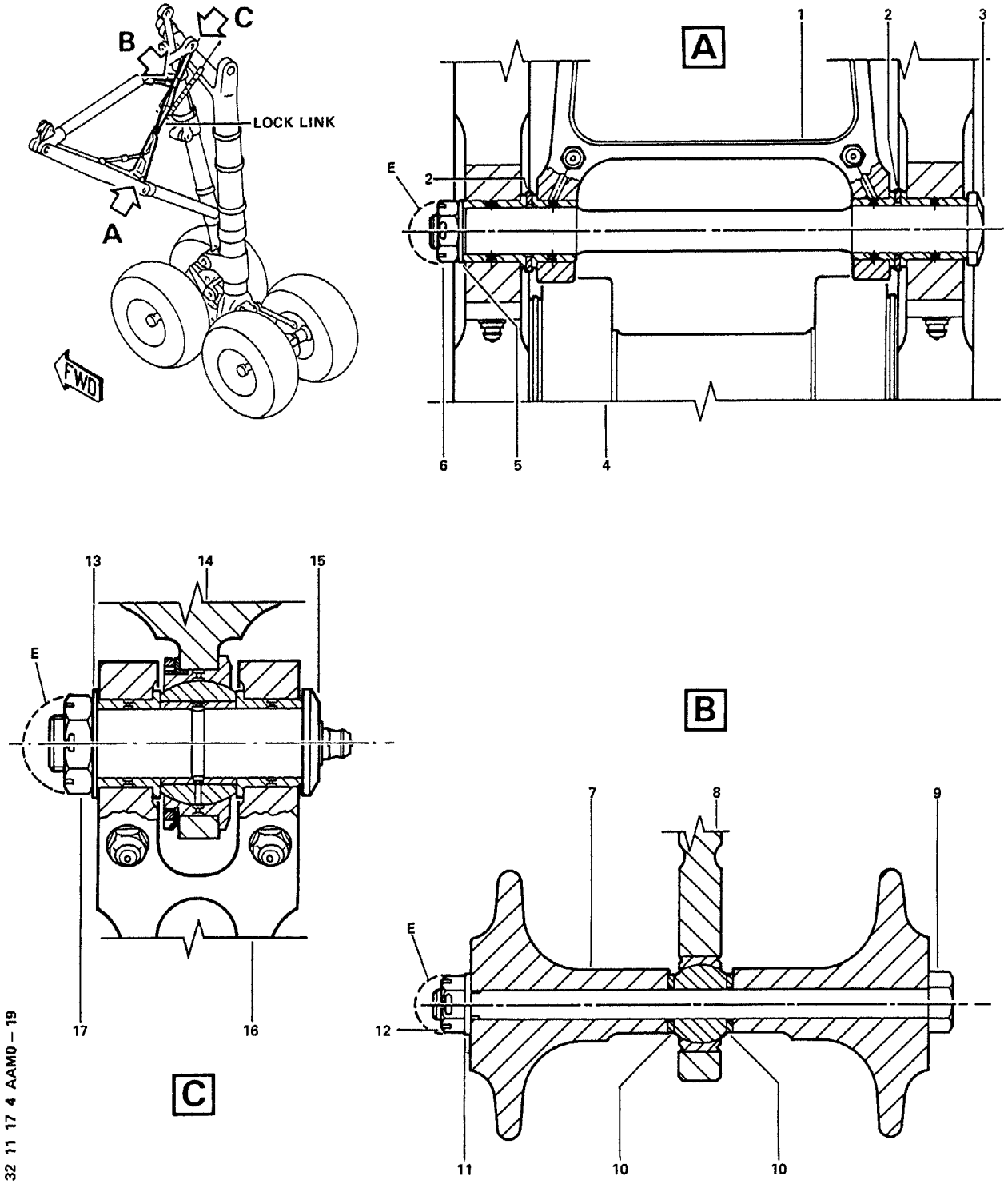
(11)Disconnect brace strut actuating cylinder assembly from its attachment on the lock link assembly (Ref. 32-31-55 P. Block 401). Ensure protection of actuating cylinder.

(12)Prior to disconnecting from lock link assembly, install sling on brace strut.

B. Removal
(Ref. Fig. 401)

(1)Disconnect main gear downlock indicator (8) from lock link assembly (7).
(a)Remove cotter pin, remove nut (12) and washer (11).
(b)Remove bolt (9) and retain washers (10).
(c)Disconnect mechanical indicator (8) rod.

(2)Remove proximity detectors on lock link assembly (Ref. 32-00-00,



Main Gear - Lock Link Assembly - Removal/Installation
Figure 401

P. Block 401).
(3)Disconnect lock link assembly lower part (1) from brace strut (4).
(a)Remove cotter pin, remove nut (6) and washer (5).
(b)Note positioning of washers (2).
(c)Drive out pin (3) using tool H21828.
(d)Disconnect lock link assembly (1) from brace strut (4), and retain washers (2).
(4)Disconnect lock link assembly upper part (16) from hinge arm (14).
(a)Remove cotter pin, remove nut (17) and washer (13).
(b)Drive out pin (15) using tool H21830.
(c)Remove lock link assembly (16) from cross brace (14).

C. Preparation of Replacement Component
(1)Make certain that parts to be installed are clean and in correct condition.
NOTE : Clean the attachment hardware with Material No. 11-004A and dry with filtered compressed air.
Apply a light coat of Material No. 05-047 to the threads of all nuts, screws, bolts and pins.
R (2)Lightly coat bearing surfaces of hinge pins with Material No. 04-004 or
R Material No. 04-022 to facilitate installation (Ref. 20-31-00).
R NOTE : Do not mix Material No. 04-004 with Material No. 04-022.
R You can use Material No. 04-022 as an alternative to
R Material No. 04-004. Clean and degrease the parts before you use
R Material No. 04-022.
(3)Replace damaged parts.

D. Installation
(1)Connect lock link assembly upper part (16) to cross brace (14).
(a)Install pin D22333000.
(b)Line up lock link assembly (16) fitting bores with cross brace (14) end.
(c)Install pin (15) using guide cone C47248.
(d)Position washer (13).
(e)Install nut (17). Bring nut (17) into contact with shoulder on pin (15). Tighten nut (17) a minimum to align holes for cotter pin.
(f)Safety nut (17) with cotter pin.
(2)Connect lock link assembly lower part (1) to brace strut (4).
(a)Install the 2 washers (2) and line up fork fitting bores.
(b)Install pin (3) using guide cone C47248.
(c)Install washer (5).
(d)Install nut (6) and safety with cotter pin.
(3)Connect downlock indicator (8) to lock link assembly (7).
(a)Position downlock indicator (8) rod and lock link assembly.
(b)Install washers (10).
(c)Install washer (11) and bolt (9).
(d)TORQUE nut (12) to between 0.85 and 1 m.daN (75 and 90 lbf. in.). Safety nut with lockwire.
(4)Coat zone identified E with Material No. 09-013A
CAUTION : MATERIAL No. 09-013A SHOULD ONLY BE APPLIED TO THE THREADED END OF BOLT AND NUT.

(5)Connect locking springs to their attachments on lock link assembly (Ref. 32-11-19, P. Block 401).
(6)Connect brace strut actuating cylinder to lock link assembly (Ref. 32-31-55, P. Block 401).
(7)Install proximity detectors on lock link assembly (Ref. 32-00-00, P. Block 401).
(8)Remove sling from brace strut.

E. Test
(1)Carry out a Free Fall extension functional test (Ref. 32-33-00, P. Block 501).
(2)Carry out a landing gear normal retraction and extension functional test (Ref. 32-31-00, P. Block 501).
(3)During retraction and extension test, check that mechanical lock indicator protrudes from wing upper surface when the main landing gear is down and locked, and check that indicator does not protrude if the main landing gear is not down and locked.

F. Close-Up
(1)Make certain that working area is clean and clear of tools and miscellaneous items of equipment.
WARNING : MAKE CERTAIN THAT AREA UNDER THE AIRCRAFT IS CLEAR.
(2)Lower the aircraft onto its wheels (Ref. 07-11-00, P. Block 1).
(3)Pressurize hydraulic reservoirs (Ref. 29-14-00, P. Block 301).
(4)Remove safety clips and tags and close HYDRAULIC/L/G PROX DET/ circuit circuit breakers line 331 and line 332 on panel 133VU.
WARNING : AFTER CLOSING CIRCUIT BREAKER 119GB LOCATED ON PANEL 133VU, PERFORM APPROPRIATE PROCEDURE (REF. 32-00-00, P. BLOCK 501).
WARNING : MAKE CERTAIN THAT THE DOOR TRAVEL RANGES ARE CLEAR.
(5)Close main gear doors (Ref. 32-12-11, P. BLock 301).
(6)Remove warning notices.
(7)Close access doors, remove access platforms and safety barriers.
(8)Remove all ground and maintenance equipment, standard and special tools, together with ground power and replenishing equipment, all access equipment and miscellaneous items.

CROSS BRACE ASSEMBLY - REMOVAL/INSTALLATION

WARNING : CHECK THAT THE LANDING GEAR GROUND SAFETIES INCLUDING WHEEL CHOCKS ARE IN POSITION.
BEFORE APPLYING OR RELIEVING HYDRAULIC SYSTEM PRESSURE. MAKE CERTAIN THAT THE TRAVEL RANGES OF THE CONTROL SURFACES ARE CLEAR.
BEFORE PRESSURIZING HYDRAULIC SYSTEMS, CHECK THAT ALL CONTROLS ARE SET TO CORRESPOND WITH THE ACTUAL POSITION OF THE SERVICES THEY OPERATE.
BEFORE POWER IS SUPPLIED TO THE AIRCRAFT MAKE CERTAIN THAT ELECTRICAL CIRCUITS UPON WHICH WORK IS IN PROGRESS ARE ISOLATED.
BEFORE PRESSURIZING HYDRAULIC SYSTEMS MAKE CERTAIN THAT HYDRAULIC SYSTEM UNDER MAINTENANCE HAS BEEN ISOLATED.

1. Reason for the Job

A. Cross Braces : Removal/Installation

B. Drop Link : Removal/Installation

2. Equipment and Materials

	ITEM	DESIGNATION
	A.	Access Platform (3.6 m - 2.6 m) (11 ft. 10 in. - 8 ft. 7 in.)
	B. 97104AB351000	- HOISTING Equipement MLG CROSS BRACE
	C. F47922	Guide Cone
	D.	Safety Barriers
	E.	Blanking Plugs
	F.	Circuit Breaker Safety Clips
	G.	Warning Notices
	H.	Hydraulic Fluid Container
R	J. Material No. 04-022	Common Greases (Ref. 20-31-00)
R	K. Material No. 05-047	Special Materials (Ref. 20-31-00)
R	L. Material No. 08-011	Bonding and Adhesive Compounds (Ref. 20-31-00)
R	M. Material No. 09-001	Sealants (Ref. 20-31-00)
R	N. Material No. 09-002	Sealants (Ref. 20-31-00)
R	P. Material No. 11-002	Cleaning Agents (Ref. 20-31-00)
R	Q. Material No. 11-004A	Cleaning Agents (Ref. 20-31-00)
	Referenced Procedures	
	- 07-11-00, P. Block 1	Jacking for Aircraft Maintenance Operations
	- 12-12-29, P. Block 1	Hydraulic Reservoir Replenishing
	- 12-22-32, P. Block 1	Landing Gear Lubrication
	- 29-10-00, P. Block 301	Main Hydraulic Power - Pressurization/Depressu-Depressurization
	- 29-14-00, P. Block 301	Hydraulic Reservoir Pressurizing System
	- 32-00-00, P. Block 501	Landing Gear
	- 32-12-11, P. Block 301	Main Gear Main Door - (Ground Door(s) Opening)
	- 32-31-00, P. Block 501	Normal Extension and Retraction
	- 32-31-44, P. Block 401	Main Gear Uplock Assy
	- 32-33-00, P. Block 501	Free Fall Extension

ITEM	DESIGNATION
- 32-42-00, P. Block 501	Normal Braking - Adjustment/Test

3. Procedure

A. Job Set-Up
(1)On panel 4VU
- make certain that landing gear Normal control lever is in **DOWN** position and prohibit its operation by displaying a warning notice.

(2)Between First Officer's and Third Occupant's seats
- make certain that the landing gear Free Fall extension control handle is in Normal position.

(3)Open, safety and tag the following circuit breakers :

PANEL	SERVICE	IDENT.	LOCATION
22VU	LDG GEAR/EXTEND CTL	1GA	201/J28
133VU	HYDRAULIC/L/G PROX DET/& RELAYS SYS 1/ GEAR DN &/CTL PNL/POS IND	3GB	332/U53
133VU	HYDRAULIC/L/G PROX DET/& RELAYS SYS 2/ FLT/GND	1GB	331/V52
133VU	HYDRAULIC/L/G PROX DET/& RELAYS SYS 1/ RELAYS &/RETRACT/CTL	2GB	332/U51
133VU	HYDRAULIC/L/G PROX DET/& RELAYS SYS 2/ GEAR DOWN &/OVHD PNL/POS IND	83GB	331/V51
	WARNING : PRIOR TO OPENING CIRCUIT BREAKER 119GB LOCATED ON PANEL 133VU TAKE THE APPROPRIATE SAFETY MEASURES (REF. 32-00-00, P. BLOCK 501).		
133VU	HYDRAULIC/L/G PROX DET/& RELAYS SYS 1/ FLT/GND	119GB	332/U52
133VU	HYDRAULIC/BRAKES SYSTEM/CTL UNIT/NORM SUPPLY	2GG	332/U55
133VU	HYDRAULIC/BRAKES SYSTEM/CTL UNIT/NORM SUPPLY	41GG	332/U56
133VU	HYDRAULIC/BRAKES SYSTEM/CTL UNIT/NORM SUPPLY	4GG	331/V55
133VU	HYDRAULIC/BRAKES SYSTEM/CTL UNIT/NORM SUPPLY	42GG	331/V56
133VU	HYDRAULIC/BRAKES SYSTEM/CTL UNIT/CTL & WARN	5GG	333/T56
133VU	HYDRAULIC/BRAKES SYSTEM/CTL UNIT/LAND/ RECOVERY/SUPPLY	98GG	333/T55
133VU	HYDRAULIC/BRAKES/TEMP/WARN	17GW	331/V53
133VU	HYDRAULIC/BRAKES/TEMP/DET/UNIT	1GW	335/R58
133VU	HYDRAULIC/ELEC/PUMPS/WARN	4GE	331/V60

(4)Position access platform.
(5)Position safety barriers prohibiting access to main gear door travel ranges.

WARNING : MAKE CERTAIN THAT DOOR TRAVEL RANGES ARE CLEAR.

(6)Open main gear doors (Ref. 32-12-11, P. Block 301).

WARNING : WHEN DOORS ARE OPEN, MAKE CERTAIN THAT SAFETY COLLARS ARE POSITIONED ON DOOR ACTUATING CYLINDERS.

(7)Depressurize Green and Yellow hydraulic tanks (Ref. 29-14-00, P. Block 301) and prohibit their pressurization by displaying a warning notice :
- on panel 429VU to prohibit APU starting
- on reservoir pressurization connectors.

(8)Depressurize Green hydraulic system (Ref. 29-10-00, P. Block 301) and prohibit its pressurization by displaying a warning notice :
- on Green hydraulic system ground connectors
- on panel 427VU to prohibit operation of Green electric pumps (ELEC PUMPS pushbutton switch)

(9)Depressurize Yellow hydraulic system (Ref. 29-10-00, P. Block 301) and prohibit its pressurization by displaying a warning notice :
- on Yellow hydraulic system ground connectors
- on panel 427VU to prohibit energization of Yellow power transfer unit (right PTU pushbutton switch)

(10)Jack up aircraft, wheels clear of ground (Ref. 07-11-00, P. Block 1).

(11)Position hydraulic fluid container.

(12)Remove main gear uplock assembly concerned (Ref. 32-31-44, P. Block 401).

(13)Disconnect locking springs from their attachments on the structure (Ref. 32-11-19, P. Block 1).

NOTE : If the main landing gear is not installed, it is possible to take apart the cross brace without removal of main gear uplock assembly.

(14)Disconnect lock link assembly and downlock indicator (Ref. 32-11-17, P. Block 401).

(15)Disconnect brace strut from drop link assembly and gear uplock assembly (Ref. 32-11-16, P. Block 401).

(16)Disconnect one end of brace strut actuating cylinder and attach lock link and brace strut so that they do not impede the following removal operations (Ref. 32-31-55, P. Block 401).

B. Removal

(Ref. Fig. 401)

(1)Disconnect hydraulic lines and electrical connectors at cross brace.

(a)Blank open line ends

(b)Install protective caps on electrical connectors.

NOTE : Remove rubber protective coating from components to be removed using a spatula taking care not to damage surface finish. Mark
R components covered with Sealant (Material No. 09-001 or
R No. 09-002).

(2)Remove cross brace

(a)Disconnect cross brace from structure

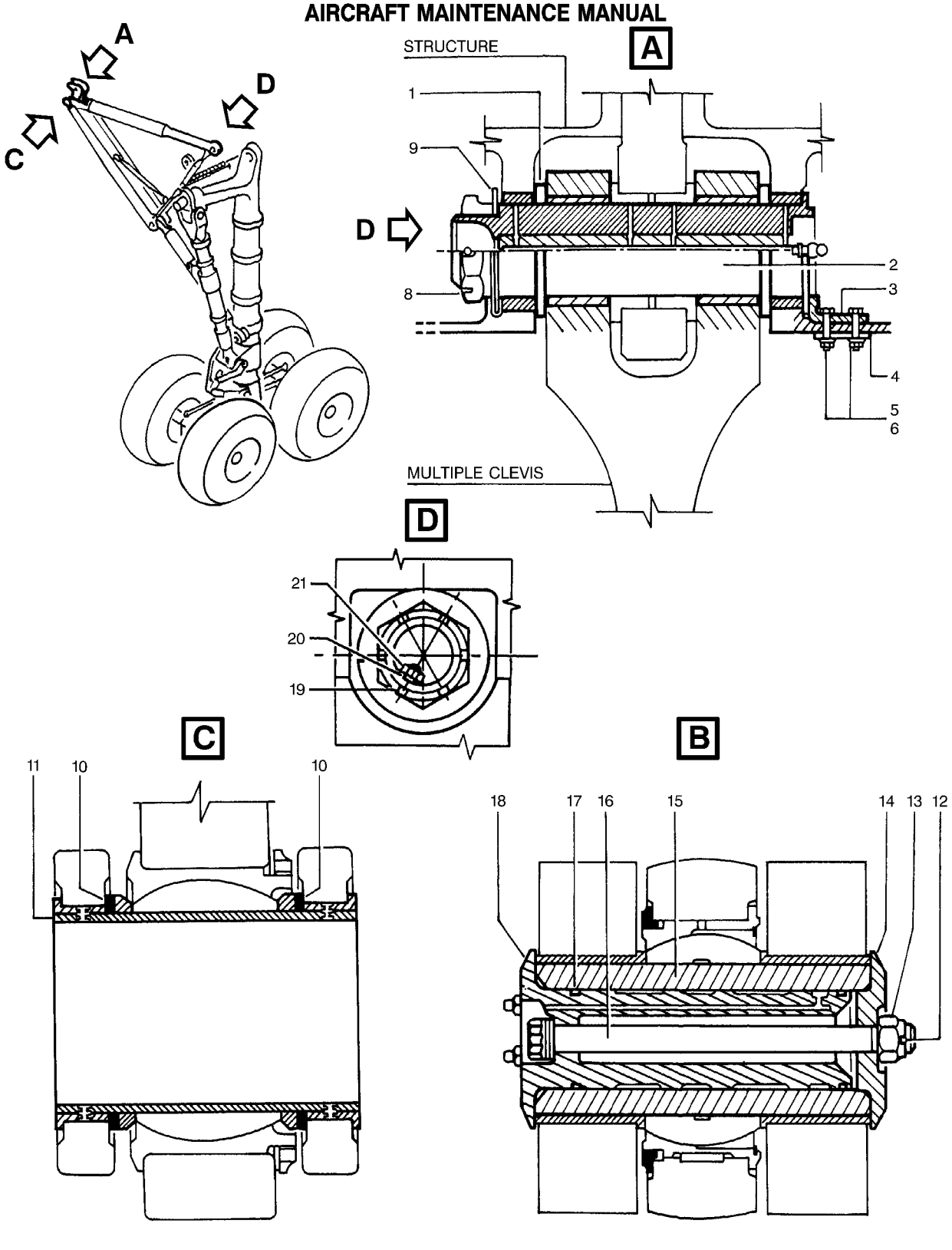
1 Remove and discard cotter pin (12)

2 Remove nut (13)

3 Remove bolt (16), retainer cap (14) and lubrication insert (18).

4 Remove and discard the 6 seals (17).

5 Remove hollow shaft (15)



Cross Brace - Drop Link Assembly
Figure 401

R

6 Disengage cross brace end fitting from structure
(b)Disconnect cross brace from drop link.
1 Remove hollow shaft (11).
2 Remove cross brace
3 Retain the 2 washers (10).
(3)Remove drop link
(a)Remove drop link from structure
1 Remove nuts (6)
2 Retain bolts (5), packing (4) and angle (3)
R 3 Remove and discard cotter pin and nut (21), retain bolt (19) and
R special washer (20)
4 Remove nut (8)
5 Retain washer (9)
6 Remove shaft (2)
7 Remove drop link and retain washers (1).

C. Preparation for Installation
(1)General instructions in the case of replacement of cross brace assembly
(a)Depreserve the replacement cross brace and drop link. Clean components with Cleaning Agent (Material No. 11-002) and dry with filtered compressed air.
NOTE : Clean the attachment hardware with Cleaning Agent (Material No. 11-004A) and dry with filtered compressed air.
Apply a light coat of Anti-corrosion Compound (Material No. 05-047) to the threads of all nuts, screws, bolts and pins.
(2)Preparation for installation of cross brace assembly
(a)Clean all parts with Cleaning Agent (Material No. 11-002) and dry with filtered compressed air, in particular clean :
1 bushes and shafts installed on drop link
2 spherical bearings and shafts of the cross brace
3 lubrication inserts
(b)Make certain that all parts are in good condition :
1 Check that there are no signs of oxidation, pitting, flaking or scratching in particular on chromed surfaces
2 Check that there are no signs of cracks or impact damage in particular on electrical cables and hydraulic lines.
3 Systematically replace seals
4 Replace any damaged parts
5 Lightly grease spherical bearings, shafts and lubrication inserts with Grease (Material No. 04-022) to facilitate installation.
6 Check that lubricators are in good condition.

D. Installation
(1)Install drop link on structure
(a)Position washers (1)
(b)Align bores in structure with those in drop link
(c)Install hollow shaft (2) and washer (9)
R (d)Install nut (8). TORQUE to between 2 and 7 m.daN (14.75 and
R 51.64 lbf.ft.)
R (e)Install bolt (19), special washer (20) and nut (21). Safety with cotter
R pin

(f)Install angle (3), bolt (5) and packing (4)
(g)Install 2 nuts (6)
(2)Install cross brace
(a)Install cross brace on structure
1 Align bores in structure with those in cross brace end fitting
2 Insert hollow shaft (15)
3 Install lubrication inserts (18) with new seals (17)
4 Install retainer cap (14) and bolt (16)
5 Install nut (13)
6 Safety nut (13) with cotter pin (12)
(b)Attach cross brace on drop link
1 Install 2 washers (10)
2 Align the bore in the cross brace with bore in the drop link
3 Insert hollow shaft (11) with guide cone F47922.
(3)Connect brace strut at drop link assembly and gear uplock assembly (Ref. 32-11-16, P. Block 401).
(4)Install main gear uplock assembly concerned (Ref. 32-31-44, P. Block 401).
(5)Connect lock link assembly together with downlock indicator to cross brace (Ref. 32-11-17, P. Block 401)
(6)Connect locking springs to their attachment points on the structure (Ref. 32-11-19, P. Block 401).
(7)Connect hydraulic lines and electrical connectors at cross brace.

E. Tests
(1)Perform Landing gear Free Fall Extension functional test (Ref. 32-33-00, P. Block 501).
(2)Perform landing gear Normal Extension and Retraction functional test (Ref. 32-31-00, P. Block 501).
(3)Perform Operational test of Anti-skid system from maintenance panel (Ref. 32-42-00, P. Block 501).

F. Close-Up
(1)Remove hydraulic fluid container
(2)Lubricate cross brace assembly (Ref. 12-22-32, P. Block 1).
(3)Apply bead of Sealant (Material No. 09-001 or No. 09-002) to components as appropriate.
(4)Make certain that working area is clean and clear of tools and miscellaneous items of equipment.
WARNING : MAKE CERTAIN THAT AREA UNDER AIRCRAFT IS CLEAR.
(5)Lower aircraft onto its wheels (Ref. 07-11-00, P. Block 1)
(6)Pressurize hydraulic reservoirs (Ref. 29-14-00, P. Block 301).
(7)Remove safety clips and tags and close circuit breakers : 3GB, 1GA, 1GB, 2GB, 83GB, 119GB, 2GG, 41GG, 4GG, 42GG, 5GG, 98GG, 17GW, 1GW, 4GE on panel 133VU.
WARNING : AFTER CLOSING CIRCUIT BREAKER 119GB LOCATED ON PANEL 133VU, PERFORM APPROPRIATE PROCEDURE (REF. 32-00-00, P. BLOCK 501).
WARNING : MAKE CERTAIN THAT DOOR TRAVEL RANGES ARE CLEAR.
(8)Close main landing gear doors (Ref. 32-12-11, P. Block 301).
(9)Replenish hydraulic reservoirs as necessary (Ref. 12-12-29, P. Block 1).
(10)Remove warning notices.

(11)Close access doors, remove access platforms and safety barriers.
(12)Remove all ground handling and maintenance equipment, standard and special tools, together with ground power and replenishing equipment, all access equipment and miscellaneous items.

LOCKING SPRING - REMOVAL/INSTALLATION

WARNING : CHECK THAT THE LANDING GEAR GROUND SAFETIES INCLUDING WHEEL CHOCKS ARE IN POSITION.

1. Equipment and Materials

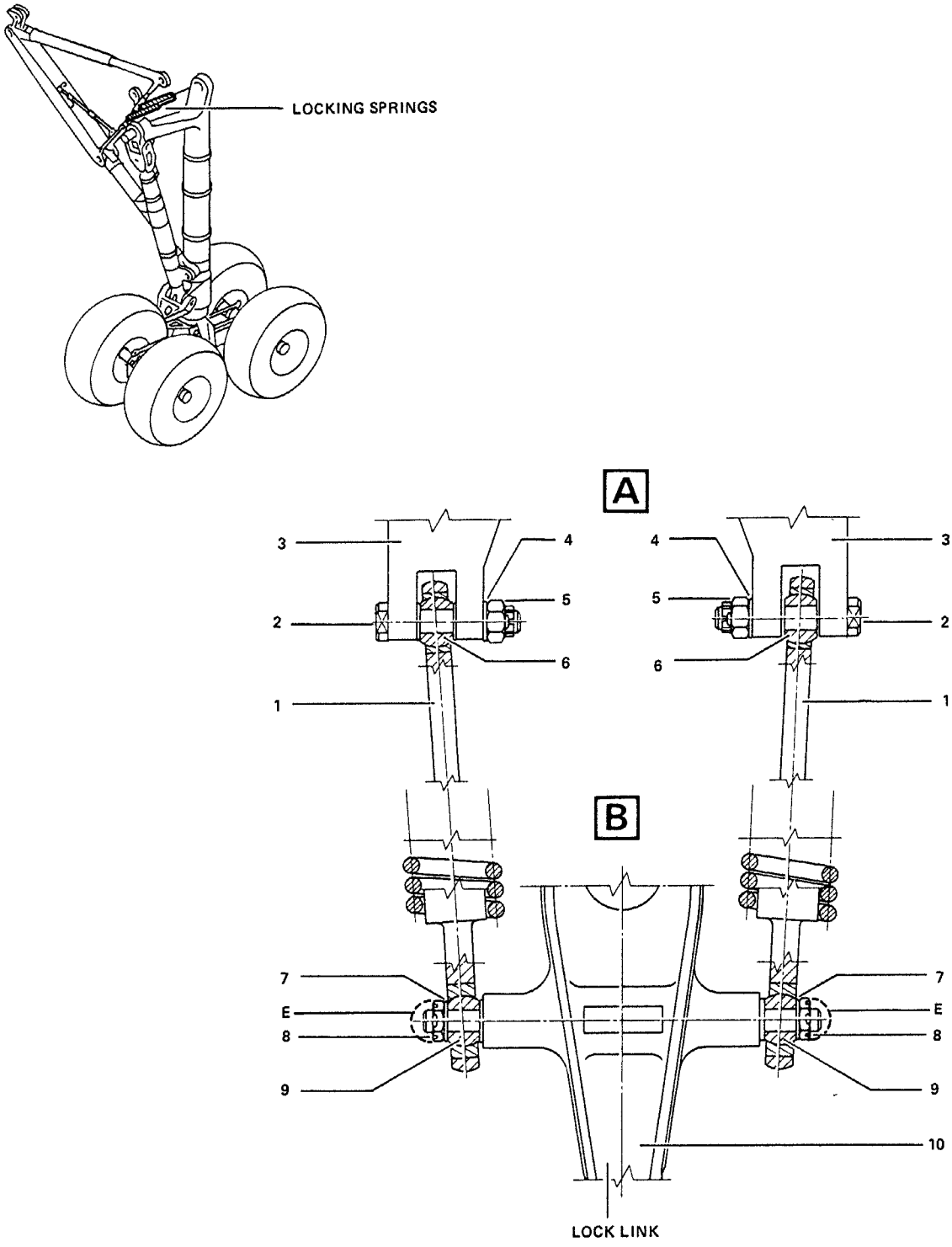
ITEM	DESIGNATION
A. F21974	Stretching Fixture
B.	Access Platform 2.60 m (8 ft. 7 in.)
C.	Warning Notice
D. Material No. 04-004 or Material No. 04-022	Common Greases (Ref. 20-31-00)
E. Material No. 05-047	Special Materials (Ref. 20-31-00)
F. Material No. 09-013A	Sealants (Ref. 20-31-00)
G. Material No. 11-004A	Cleaning Agents (Ref. 20-31-00)

2. Procedure

A. Job Set-Up
  (1)On panel 4VU
    - make certain that landing gear control lever is in **DOWN** position and prohibit its operation by displaying a warning notice.
  (2)Between First Officer's and Third Occupant's seats
    - make certain that Free Fall extension control lever is in Normal position.
  (3)Position access platform

B. Removal
  (Ref. Fig. 401)
  (1)Install stretching fixture F21974 and adjust until spring attaching bolts are not longer under tension.
  (2)Remove springs (1) from structural fitting (3).
    (a)Remove cotter pins, the 2 nuts (5) and 2 washers (4).
    (b)Remove the 2 bolts (2).
    (c)Disengage springs (1) from structural fitting (3).
  (3)Remove springs (1) from lock link assembly(10).
    (a)Remove cotter pins, the 2 nuts (8) and washers (7).
    (b)Remove locking springs (1) from lock link assembly (10).

C. Preparation of Replacement Component
R (1)Lightly grease outside of springs (1) and spherical bearings (6) and (9) with Material No. 04-004 or Material No. 04-022.
    NOTE : Do not mix Material No. 04-004 with Material No. 04-022. You can use Material No. 04-022 as an alternative to Material No. 04-004. Clean and degrease the parts before you use Material No. 04-022.
  (2)Install stretching fixture F21974 on springs (1) and stretch springs.
    NOTE : Clean the attachment hardware with Material No. 11-004A and



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Main Gear - Locking Spring - Removal/Installation
Figure 401

dry with filtered compressed air.
Apply a light coat of Material No. 05-047 to the threads of all nuts, screws, bolts and pins.

D. Installation
(1)Connect springs (1) to structural fitting (3).
(a)Position spherical end fittings (6) in structural fitting (3).
(b)Install bolts (2) and washers (4).
(c)Install and tighten nuts (5). Safety with cotter pins.
(2)Connect springs (1) to lock link assembly (10).
(a)Position locking springs (1).
(b)Position washers (7).
(c)Install 2 nuts (8). TORQUE to between 2.5 and 4 m.daN. (18 to 29 lbf. ft.). Safety with cotter pins.
(3)Coat zone identified E with Material No. 09-013A.
CAUTION : MATERIAL NO. 09-013A SHOULD ONLY BE APPLIED TO THE THREADED END OF BOLT AND NUT.
(4)Remove stretching fixture F21974.

E. Test
(1)(Not applicable).

F. Close-Up
(1)Make certain that working area is clean and clear of tools and miscellaneous items of equipment.
(2)Remove warning notice.
(3)Remove all ground handling and maintenance equipment, standard and special tools, together with ground power and replenishing equipment, all access equipment and miscellaneous items.

MAIN GEAR SPHERICAL BEARING - REMOVAL/INSTALLATION

WARNING : CHECK THAT THE LANDING GEAR GROUND SAFETIES INCLUDING WHEEL CHOCKS ARE IN POSITION.
BEFORE APPLYING OR RELIEVING HYDRAULIC SYSTEM PRESSURE, MAKE CERTAIN THAT THE TRAVEL RANGES OF THE CONTROL SURFACES ARE CLEAR.
BEFORE PRESSURIZING HYDRAULIC SYSTEMS, CHECK THAT ALL CONTROLS ARE SET TO CORRESPOND WITH THE ACTUAL POSITION OF THE SERVICES THEY OPERATE.
BEFORE POWER IS SUPPLIED TO THE AIRCRAFT MAKE CERTAIN THAT ELECTRICAL CIRCUITS UPON WHICH WORK IS IN PROGRESS ARE ISOLATED.
BEFORE PRESSURIZING HYDRAULIC SYSTEMS MAKE CERTAIN THAT HYDRAULIC SYSTEM UNDER MAINTENANCE HAS BEEN ISOLATED.

1. Equipment and Materials

	ITEM	DESIGNATION
	A. 98A32104164000	Wrench
	B.	Circuit Breaker Safety Clips
	C.	Access Platforms (2.6 m - 3.6 m) (8 ft. - 11 ft. 10 in.)
	D.	Warning Notices
	E.	Safety Barriers
	F. Material No. 04-022	Common Greases (Ref. 20-31-00)
	G. Material No. 05-002	Anti-Corrosion Compound
R	H. Material No. 05-047	Special Materials (Ref. 20-31-00)
	J. Material No. 09-003	Sealants (Ref. 20-31-00)
	K. Material No. 11-002	Cleaning Agents (Ref. 20-31-00)
R	L. Material No. 15-008A	Storage Preservation (Ref. 20-31-00)
R	M.	Lockwire - Corrosion Resistant Steel,
R		Dia. 0.8 mm (0.032 in.)
R	L. Material No. 11-004	Cleaning Agents (Ref. 20-31-00)
R	M. Material No. 11-004A	Cleaning Agents (Ref. 20-31-00)
R	N. Material No. 15-008A	Storage Preservation (Ref. 20-31-00)
R	P.	Lockwire - Corrosion Resistant Steel,
R		Dia. 0.8 mm (0.032 in.)
	Referenced Procedures	
	- 07-11-00, P. Block 1	Jacking for Aircraft Maintenance Operations
	- 12-12-29, P. Block 1	Hydraulics
	- 29-10-00, P. Block 301	Main Hydraulic Power-Pressurization/ Depressurization
	- 29-14-00, P. Block 301	Hydraulic Reservoir Pressurizing System
	- 32-00-00, P. Block 501	Landing Gear
	- 32-11-11, P. Block 401	Main Gear Leg
	- 32-12-11, P. Block 301	Main Gear Main Door - (Ground Door(s) Opening)
	- 32-31-00, P. Block 501	Normal Extension and Retraction

2. Procedure

A. Job Set-Up

(1)On panel 4VU
- make certain that landing gear control lever is in **DOWN** position and prohibit its operation by displaying a warning notice.

(2)Between First Officer's and Third Occupant's seats
- make certain that landing gear Free Fall extension control handle is in Normal position.

(3)Position access platforms.

(4)Position safety barriers prohibiting access to gear door travel ranges.
WARNING : MAKE CERTAIN THAT THE DOOR TRAVEL RANGES ARE CLEAR.

(5)Open main gear doors (Ref. 32-12-11, P. Block 301).

(6)Depressurize Green hydraulic system (Ref. 29-10-00, P. Block 301) and prohibit its pressurization by displaying a warning notice :
- on Green hydraulic system ground connectors,
- on panel 427VU to prohibit operation of Green electric pumps (**ELEC PUMPS** pushbutton switch).

(7)Depressurize Yellow hydraulic system (Ref. 29-10-00, P. Block 301) and prohibit its pressurization by displaying a warning notice :
- on Yellow hydraulic system ground connectors
- on panel 427VU to prohibit energization of **TRANSF** unit (**RH PTU** push-button switch).

(8)Depressurize Green and Yellow hydraulic reservoirs (Ref. 29-14-00, P. Block 301) and prohibit their pressurization by displaying a warning notice :
- on panel 429VU to prohibit **APU** starting,
- on reservoir pressurization connector.

(9)Open, safety and tag the following circuit breakers :

PANEL	SERVICE	IDENT.	LOCATION
133VU	HYDRAULIC-L/G PROX DET/RELAYS SYS 2 GEAR ON/OVHD PNL POS IND	83GB	331/V51
133VU	HYDRAULIC-L/G PROX DET AND RELAYS SYS 2 FLT/GND	1GB	331/V52
133VU	HYDRAULIC-L/G SYS 1 RELAYS AND RETRACT CTL	2GB	332/U51
133VU	HYDRAULIC-L/G GEAR PROX DET AND RELAYS/ SYS 1/FLT/GND **WARNING : PRIOR TO OPENING CIRCUIT BREAKER 119GB LOCATED ON PANEL 133VU TAKE THE APPROPRIATE SAFETY PRECAUTIONS (REF. 32-00-00, P. BLOCK 501).**	119GB	332/U52
133VU	HYDRAULIC BRAKES/FAN/CTL	17GS	331/V53
133VU	HYDRAULIC TIRE/PRESS	1GV	333/T54
133VU	HYDRAULIC/BRAKES/TEMP/WARN	17GW	331/V54
133VU	HYDRAULIC/BRAKES/TEMP/DET/UNIT	1GW	335/R58
133VU	HYDRAULIC/BRAKES SYSTEM/CTL UNIT CTL &/ WARN	5GG	333/T56
133VU	HYDRAULIC/BRAKES SYSTEM/CTL UNIT/LAND/ RECOVERY/SUPPLY	98GG	333/T55
133VU	HYDRAULIC/BRAKES SYSTEM/CTL UNIT/NORM	4GG	331/V55
133VU	HYDRAULIC/BRAKES SYSTEM/CTL UNIT/SUPPLY	42GG	331/V56
133VU	HYDRAULIC/BRAKES SYSTEM/CTL UNIT/NORM	2GG	332/U55

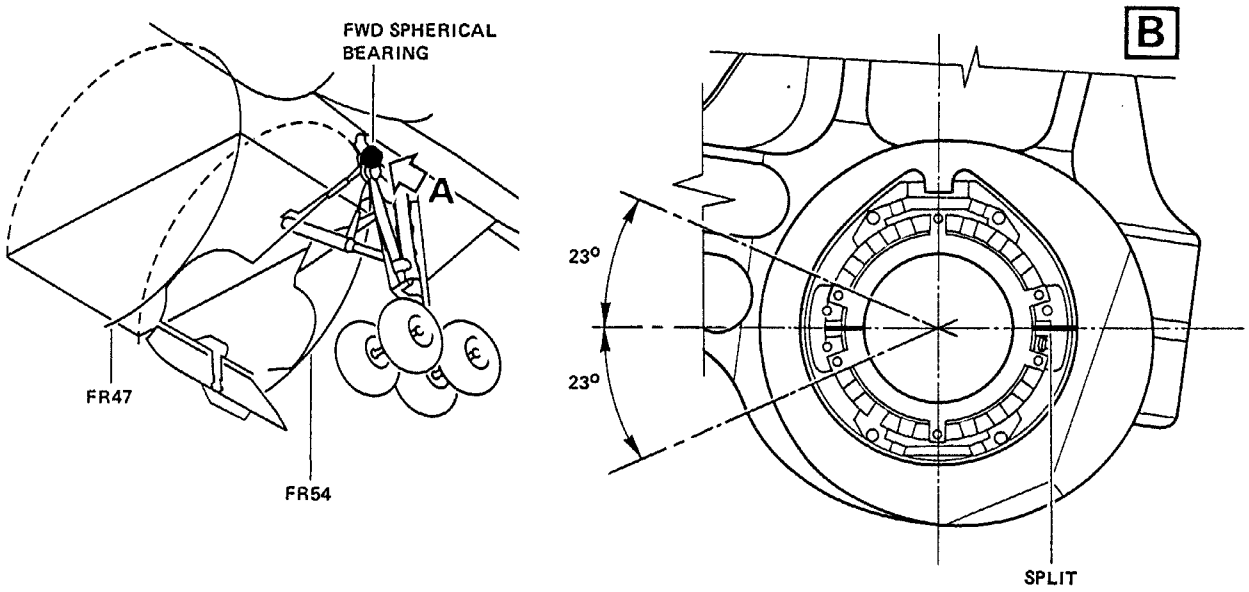
PANEL	SERVICE	IDENT.	LOCATION
133VU	HYDRAULIC/BRAKES SYSTEM/CTL UNIT/SUPPLY	41GG	332/U56
133VU	HYDRAULIC/AUTO BRK	95GG	335/R57
133VU	HYDRAULIC/ELEC/PUMPS/WARN	4GE	331/V60
133VU	HYDRAULIC-ACCU PRESS CTL/AND CARGO DOOR/PUMP	7GX	333/T51

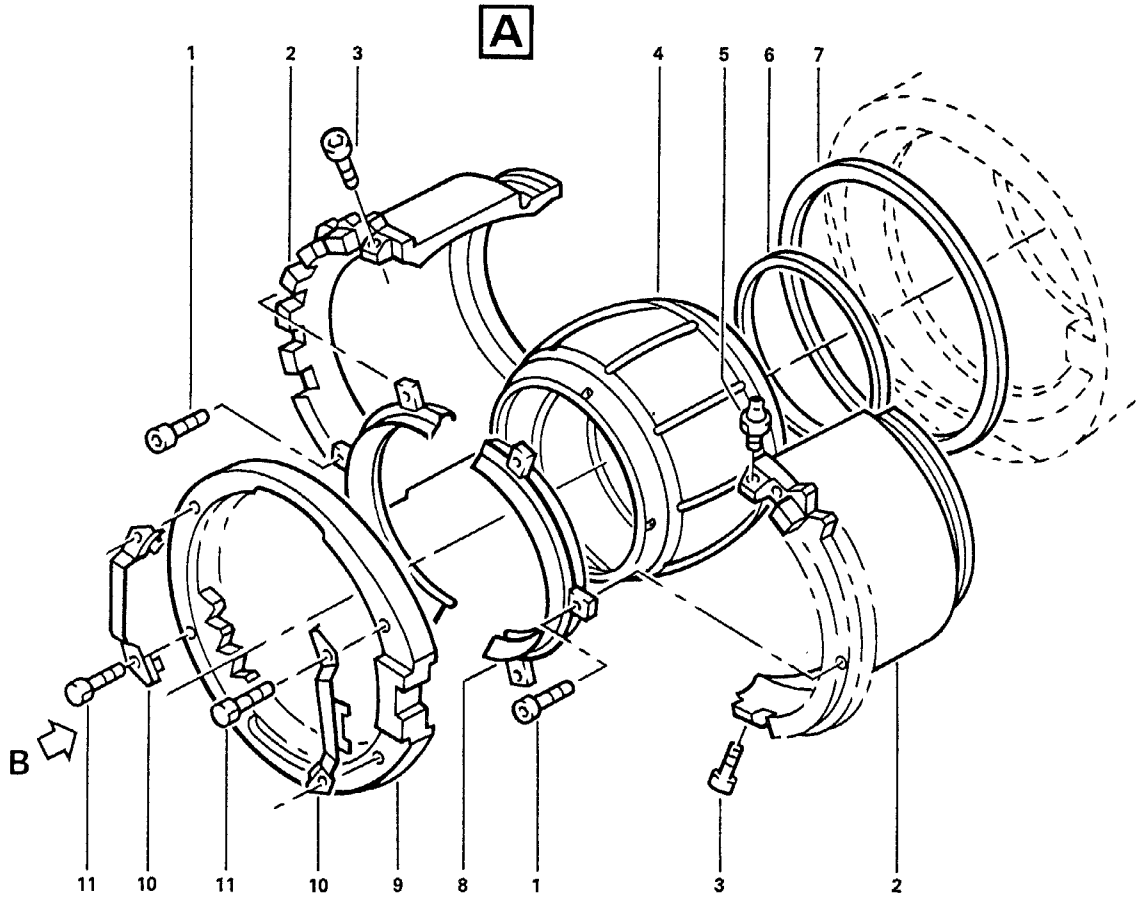
(10)Jack up aircraft until wheels are clear of ground (Ref. 07-11-00, P. Block 1).
(11)Remove main gear (Ref. 32-11-11, P. Block 401).
NOTE : Do not remove accessories from landing gear.
NOTE : Prior to removing the trunnion from the spherical bearing
R do not omit to remove screws (1) and seal (8) and lubricator nipple (5) to avoid damaging them.

B. Removal
(Ref. Fig. 401)
(1)Cut and remove lockwire and remove screws (11), lockplates (10) and locking ring (9).
(2)Make certain that grease nipple (5) is removed from bearing housing (2).
(3)Remove three screws (3) then using wrench 98A32104164000 unscrew bearing housing (2).
(4)Remove spherical bearing (4) housing.
(5)Remove grease seal (6) then shim (7).

C. Preparation of Replacement Component
(1)Depreserve replacement spherical bearing by removing external protective coverings.
(2)Clean with Cleaning Agent (Material No. 11-002), all parts retained for installation, check condition then dry with filtered compressed air.
NOTE : Clean the attachment hardware with Cleaning Agent (Material No. 11-004A) and dry with filtered compressed air. Apply a light coat of Anti-corrosion Compound (Material No. 05-047) to the threads of all nuts, screws, bolts and pins.
(3)Clean the split faces of housing (2) with Cleaning Agent (Material No. 11-004 or No. 11-004A).

D. Installation
(1)Install spherical bearing (4) in housing (2).
CAUTION : SPHERICAL BEARING (4) MUST BE POSITIONED WITH GREASE SEAL (6) GROOVE AT THE FORWARD SIDE AND BORE GROOVE POSITIONED IN ORDER TO COINCIDE WITH EXISTING GREASE HOLES.
NOTE : Before assembly, apply a coat of Anti-corrosion Compound (Material No. 05-002 or No. 05-047) on split faces of housing (2). Remove excess material.
NOTE : Upon assembly, fill spherical bearing housing greaseways with Grease (Material No. 04-022).
(2)Smear grease seal (6) groove with Grease (Material No. 04-022).





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FWD Spherical Bearing
Figure 401

(3)Install a new grease seal (6) on spherical bearing.
(4)Install shim (7).
(5)Smear threads of bearing housing (2) and threads of housing retaining nut with Anti-corrosion Compound (Material No. 05-047).
(6)Smear landing gear trunnion and bearing housing (outer ring) (2) with Anti-corrosion Compound (Material No. 05-047).
(7)Install spherical bearing (4), housing (2) assembly.
(8)Fully tighten housing (2) using wrench 98A32104164000.
NOTE : After tightening housing, make certain that split in housing lies within ± 23° of A/C horizontal plane.
If split in housing lies outside ± 23° of A/C horizontal plane, remove housing (2) and adjust shim (7) Max. thickness : 0.05 in. (1.27 mm), Min. 0.014 in. (0.355 mm).
NOTE : During reinstallation, a single packer may be installed instead of peelable shim (7).
(9)Re-install housing (2) (Ref. Para. 2.D.(5)(6)(7)(8)).
(10)Blank three remaining greaseway holes with screws (3) and leave grease nipple (5) hole free.
(11)Make certain that spherical bearing moves freely in housing.
(12)Apply a bead of Sealant (Material No. 09-003) on aft face of housing split line.
(13)Install locking ring (9), position lockplates (10) and install screws (11). Wirelock screws (11).
(14)Spray Protective Compound (Material No. 15-008A) over head of housing and on housing retaining nut (as it is possible through the bearing ball bore).
(15)Install main gear (Ref. 32-11-11, P. Block 401).
NOTE : With trunnion installed in its spherical bearing, install seal (8) and screws (1).
Install grease nipple (5) in lower of the two greaseway holes (inboard).

E. Test
(1)Perform landing gear extension/retraction test (Ref. 32-31-00, P. Block 501).

F. Close-Up
(1)Make certain that working area is clean and clear of tools and miscellaneous items of equipment.
WARNING : MAKE CERTAIN AREA UNDER THE AIRCRAFT IS CLEAR.
(2)Lower the aircraft onto its wheels (Ref. 07-11-00, P. Block 1).
(3)Remove safety clips and tags and close circuits breakers 83GB, 1GB, 2GB, 119GB, 17GS, 1GV, 17GW, 1GW, 5GG, 98GG, 4GG, 42GG, 2GG, 41GG, 95GG, 4GE, 7GX.
WARNING : AFTER CLOSING CIRCUIT BREAKER 119GB LOCATED ON PANEL 133VU, PERFORM APPROPRIATE PROCEDURE (Ref. 32-00-00, P. Block 501).
(4)Lubricate spherical bearing (Ref. 12.22.32, P. Block 1).
(5)Pressurize hydraulic reservoirs (Ref. 29-14-00, P. Block 301).
WARNING : MAKE CERTAIN THAT DOOR TRAVEL RANGES ARE CLEAR.
(6)Close main landing gear doors (Ref. 32-12-11, P. Block 301).
(7)Replenish hydraulic reservoirs as necessary (Ref. 12-12-29, P. Block 1).
(8)Remove warning notices.

(9)Close access doors, remove access platforms and safety barriers.
(10)Remove all ground handling and maintenance equipment standard and special tools, together with ground power and replenishing equipment, all access equipment and miscellaneous items.

MAIN GEAR TORQUE LINKS - REMOVAL/INSTALLATION

WARNING : CHECK THAT THE LANDING GEAR GROUND SAFETIES INCLUDING WHEEL CHOCKS ARE IN POSITION.
BEFORE APPLYING OR RELIEVING HYDRAULIC SYSTEM PRESSURE, MAKE CERTAIN THAT THE TRAVEL RANGES OF THE CONTROL SURFACES ARE CLEAR.
BEFORE PRESSURIZING HYDRAULIC SYSTEMS, CHECK THAT ALL CONTROLS ARE SET TO CORRESPOND WITH THE ACTUAL POSITION OF THE SERVICES THEY OPERATE.

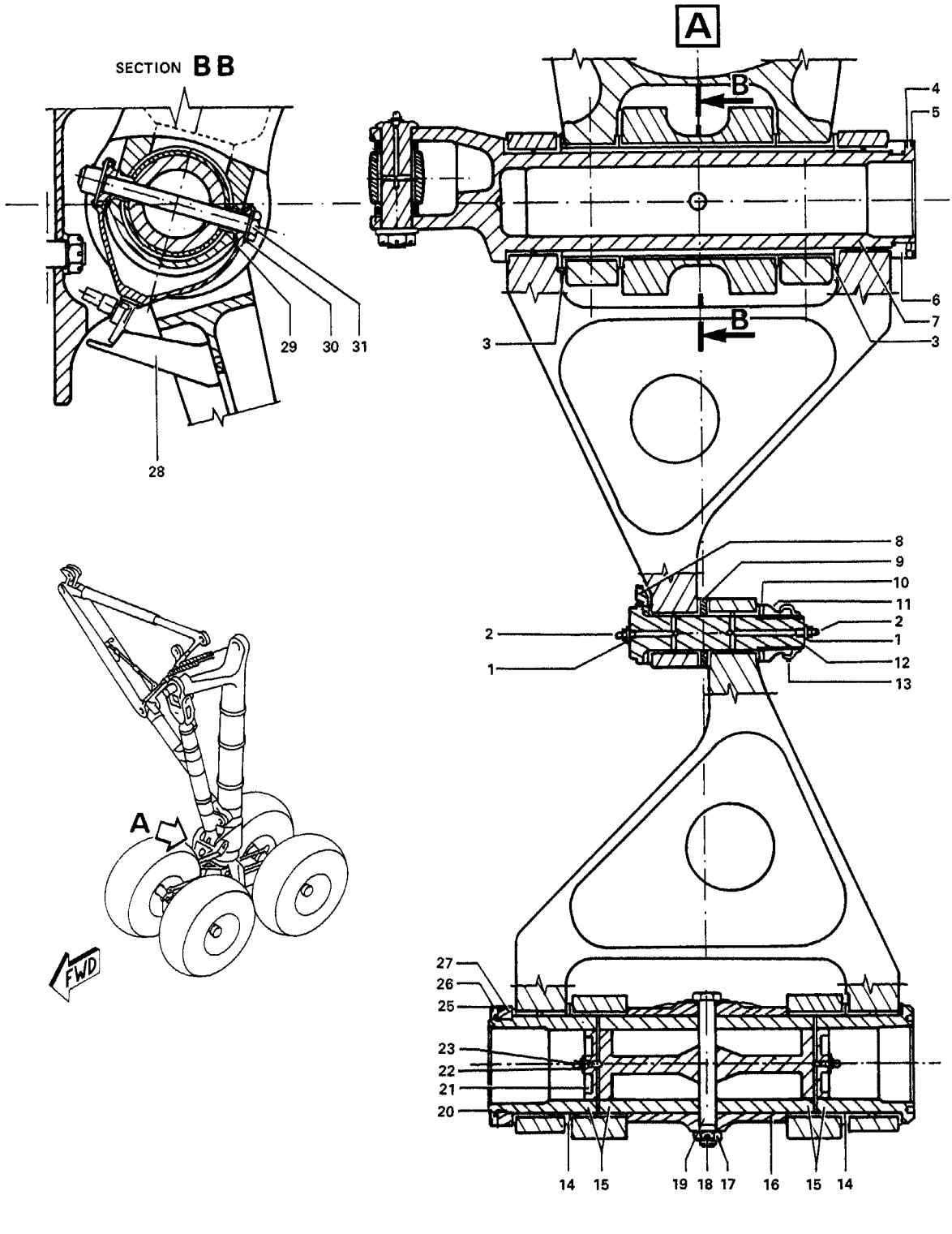
1. Equipment and Materials

	ITEM	DESIGNATION
	A. D46073	Extractor
	B. D46074	Adapter
	C. D46360	Assembly Tool
	D. H46750	Extractor
	E. C47511	Adaptor
	F. F47530	Positioning Pin
	G. F47531	Extractor
	H. F47532	Retaining Wrench
	J. Material No. 04-004	Common Greases (Ref. 20-31-00)
R	K. Material No. 04-022	Common Greases (Ref. 20-31-00)
R	L. Material No. 05-047	Special Materials (Ref. 20-31-00)
R	M. Material No. 09-001	Sealants (Ref. 20-31-00)
R	N. Material No. 11-002	Cleaning Agents (Ref. 20-31-00)
R	P. Material No. 11-004A	Cleaning Agents (Ref. 20-31-00)
	Referenced Procedures	
	- 07-11-00, P. Block 1	Jacking For Aircraft Maintenance Operations
	- 12-22-32, P. Block 1	Landing Gear - Lubrication
	- 12-37-32, P. Block 1	Wheel Replacement
	- 32-00-00, P. Block 401	Landing Gear
	- 32-12-15, P. Block 401	Main Gear Cylinder Doors
	- 32-11-27, P. Block 801	Main Gear - Torque Links

2. Procedure

A. Job Set-Up
(1)Jack up aircraft wheels clear of ground (Ref. 07-11-00, P. Block 1).
(2)Remove appropriate main gear forward wheel to gain access to torque link lower hinge shaft (Ref. 12-37-32, P. Block 1).
(3)Remove Main Gear Cylinder door (Ref. 32-12-15, P. Block 401).
(4)Using a spatula remove rubber coating taking care not to damage surface protective finish.

B. Removal
(Ref. Fig. 401)
(1)Remove torque links center hinge shaft.
(a)Remove the two lubricators (2) and retain the two washers (1).
(b)Extract key washer (13) with extractor D46073.
(c)Hold shaft (12) and remove nut (11) with adaptor D46074.



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Main Gear - Torque Links
Figure 401

R NOTE : ALS Part 1 item, nut must be replaced by a new one every time it
R is removed from the shaft. When the nut is temporarily removed
R and reinstalled for the purpose of performing maintenance
R outside a a workshop, no replacement is required provided the
R nut's removal and reinstallation are performed on the same
R aircraft MSN and neither the aircraft MSN nor the nut accumu-
R lates time in service during the period between the removal and
R reinstallation.

(d)Drive out shaft (12) with a plastic drift and retain washers (9) and (10) and support (8).

CAUTION : DURING REMOVAL OF TORQUE LINKS CENTER HINGE SHAFT, HOLD TORQUE LINKS UPPER AND LOWER ARMS TO AVOID DAMAGING THE PROXIMITY DETECTOR TARGET SUPPORT, AND PRESSURE DROP INDICATOR.

(2)Remove torque links lower hinge shaft.

(a)Remove cotter pin (18).

(b)Remove nut (17) and bolt (19).

(c)Remove spring clip (25) and extract washer (26) with extractor H46750.

(d)Remove nut (27) with adaptor C47511 while holding hinge shaft (20) in place with retaining wrench F47532.

(e)Remove lubricators (23) and washers (22).

(f)Drive out lubrication insert (21) with a drift.

(g)Extract hinge shaft (20) with extractor F47531.

(h)Retain washers (14) and spacer (16) for reinstallation. Disengage torque link arm from fork fitting.

(3)Remove torque links upper hinge shaft.

(a)Fold back tab of lockwashers (30) and remove bolt (31) and suport assembly (29).

(b)Remove spring clip (5) and extract washer (4) with extractor H46750.

(c)Remove nut (6) using adaptor C47511 while holding hinge shaft (7) with retaining wrench F47532.

R NOTE : ALS Part 1 item, nut must be replaced by a new one every time it
R is removed from the shaft. When the nut is temporarily removed
R and reinstalled for the purpose of performing maintenance
R outside a workshop, no replacement is required provided the
R nut's removal and reinstallation are performed on the same
R aircraft MSN and neither the aircraft MSN nor the nut accumu-
R lates time in service during the period between the removal and
R reinstallation.

(d)Remove shaft (7).

(e)Remove and retain washers (3). Remove torque link upper arm.

C. Preparation of Replacement Component

(1)Depreserve replacement torque links by removing external protective coverings and clean with Material No. 11-002 and dry with filtered compressed air.

(2)Install lubricators and proximity detector target support (28) on replacement torque links.

(3)Clean all parts with Material No. 11-002 and dry with filtered compressed air.

NOTE : Clean the attachment hardware with Material No. 11-004A and dry

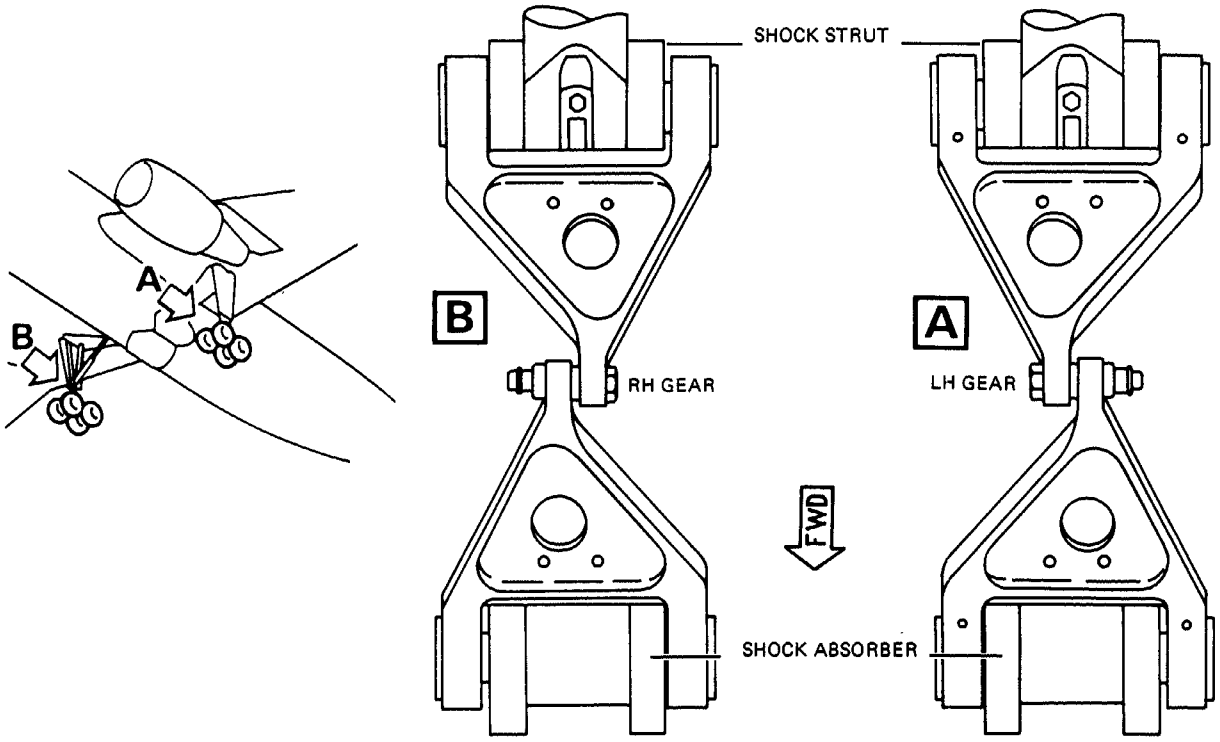
with filtered compressed air.
Apply a light coat of Material No. 05-047 to the threads of all nuts, screws, bolt and pins.

(4)Make certain that all parts to be used for installation of replacement component are in correct condition (Replace any damaged parts).
(5)Check lubricators for correct condition.
(6)Systematically, replace lubrication insert seals (15).
(7)Smear bushings and shafts with Material No. 04-004 or Material No. 04-022 in order to facilitate installation.
NOTE : Do not mix Material No. 04-004 with Material No. 04-022.
You can use Material No. 04-022 as an alternative to Material No. 04-004. Clean and degrease the parts before you use Material No. 04-022.

D. Installation
(Ref. Fig. 402)
NOTE : - Make certain that torque links are correctly positioned.
- If necessary, adjust plays J1, J2 and J3 (Ref. 32-11-27, P. Block 801).

(1)Install torque link upper hinge shaft.
(a)Line up shock strut, drag strut, and torque link fork fitting bores.
(b)Install washers (3) and engage hinge shaft (7).
CAUTION : HEAD OF HINGE SHAFT BEARING UPLOCK ROLLER, FACING INBOARD, WITH ROLLER HORIZONTAL AND OFFSET AFT.
(c)Position hinge shaft with retaining wrench F47532.
(d)Install support assembly (29) and bolt (31) together with lockwasher (30), TORQUE bolt (31) to between 16 and 18 m.daN (118.03 and 132.77 lbf.ft.).
(e)Safety bolt (31) with lockwasher (30).
(f)Install nut (6) with adaptor C47511. TORQUE nut to between 10 and 12 m.daN (73.77 and 88.52 lbf.ft.).
R NOTE : ALS Part 1 item, nut must be replaced by a new one every time it
R is removed from the shaft. When the nut is temporarily removed
R and reinstalled for the purpose of performing maintenance
R outside a workshop, no replacement is required provided the
R nut's removal and reinstallation are performed on the same
R aircraft MSN and neither the aircraft MSN nor the nut accumu-
R lates time in service during the period between the removal and
R reinstallation.
(g)Install washer (4) and spring clip (5).

(2)Install torque link lower hinge shaft.
(a)Align torque links and shock absorber fork fitting bores.
(b)Install washers (14) and spacer (16) and engage hinge shaft (20).
(c)Position hinge shaft (20) with retaining wrench F47532.
(d)Install lubrication insert (21) and seals (16) taking care to line up bores with positioning pin F47530.
(e)Install lubricators (23) and washers (22).
(f)Install bolt (19). Install nut (17). TORQUE nut (17) to between 5.4 and 6.4 m.daN (39.82 and 47.20 lbf.ft.).
Safety nut with cotter pin (18).
(g)Install nut (27) with adaptor C47511. TORQUE nut to between 10 and



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Main Gear Torque Links (LH, RH) - Installation
Figure 402

12 m.daN (73.77 and 88.52 lbf.ft).

(h)Install washer (26) and spring clip (25).

(3)Install torque link center hinge shaft.

(a)Align torque link upper and lower arm bores and install washers (9) and (10). Install support (8) and hinge shaft (12).

(b)Install nut (11) and TORQUE to 15 m.daN (110.6 lbf.ft.).

R NOTE : ALS Part 1 item, nut must be replaced by a new one every time it
R is removed from the shaft. When the nut is temporarily removed
R and reinstalled for the purpose of performing maintenance
R outside a workshop, no replacement is required provided the
R nut's removal and reinstallation are performed on the same
R aircraft MSN and neither the aircraft MSN nor the nut accumu-
R lates time in service during the period between the removal and
R reinstallation.

(c)Back off nut then tighten to obtain total clearance of between 0.05 mm and 0.1 mm (0.002 in and 0.0039 in.).

(d)Install key washer (13) with assembly tool D46360.

(e)Install Main Gear Cylinder-door (Ref. 32-12-15, P. Block 401).

E. Close-Up

(1)Check proximity detectors for correct adjustment (Ref. 32-00-00, P. Block 401).

(2)Lubricate torque link hinges with Material No. 04-004 or Material No. 04-022 (Ref. 12-22-32, P. Block 1).

(3)Apply a bead of rubber sealant No. 09-001 on attaching hardware.

(4)Install wheels (Ref. 12-37-32, P. Block 1).

(5)Make certain that working area is clean and clear of tools and miscellaneous items of equipment.

(6)On panel 4VU

- make certain that landing gear Normal control lever is in DOWN position.

WARNING : MAKE CERTAIN AREA UNDER THE AIRCRAFT IS CLEAR.

(7)Lower the aircraft onto its wheels (Ref. 07-11-00, P. Block 1).

MAIN GEAR TORQUE LINKS - APPROVED REPAIRS

WARNING : CHECK THAT LANDING GEAR GROUND SAFETIES INCLUDING WHEEL CHOCKS ARE IN POSITION.

1. Reason for the Job

Check and take-up of end play on main gear torque links.

2. Equipment and Materials

ITEM	DESIGNATION
A.	Adapter - Torque Link Center Hinge Shaft
B.	Feeler Gages

R

Referenced Procedures

- 07-11-00, P. Block 1	Lifting and Jacking
- 12-22-32, P. Block 1	Landing Gear Lubrication
- 32-11-27, P. Block 401	Main Gear Torque Links

3. Procedure

A. Job Set-Up

(1)On panel 4VU
- make certain that landing gear control lever is in **DOWN** position and prohibit its operation by displaying a warning notice.

(2)Between First Officer's and Third Occupant's seats
- make certain that landing gear Free Fall extension control handle is in Normal position.

(3)Jack up the aircraft until wheels are clear of ground (Ref. 07-11-00, P. Block 1).

B. Check of End Play

(Ref. Fig. 801)

(1)Measure play at J2 in using feeler gage.

(2)Remove nut from center hinge shaft (Ref. 32-11-27, P. Block 401).

(3)Push torque links laterally in direction indicated by the arrows to stop position so that overall play is located at J1, J2 and J3.

(4)Measure play at J1 and J3.

Permissible play :

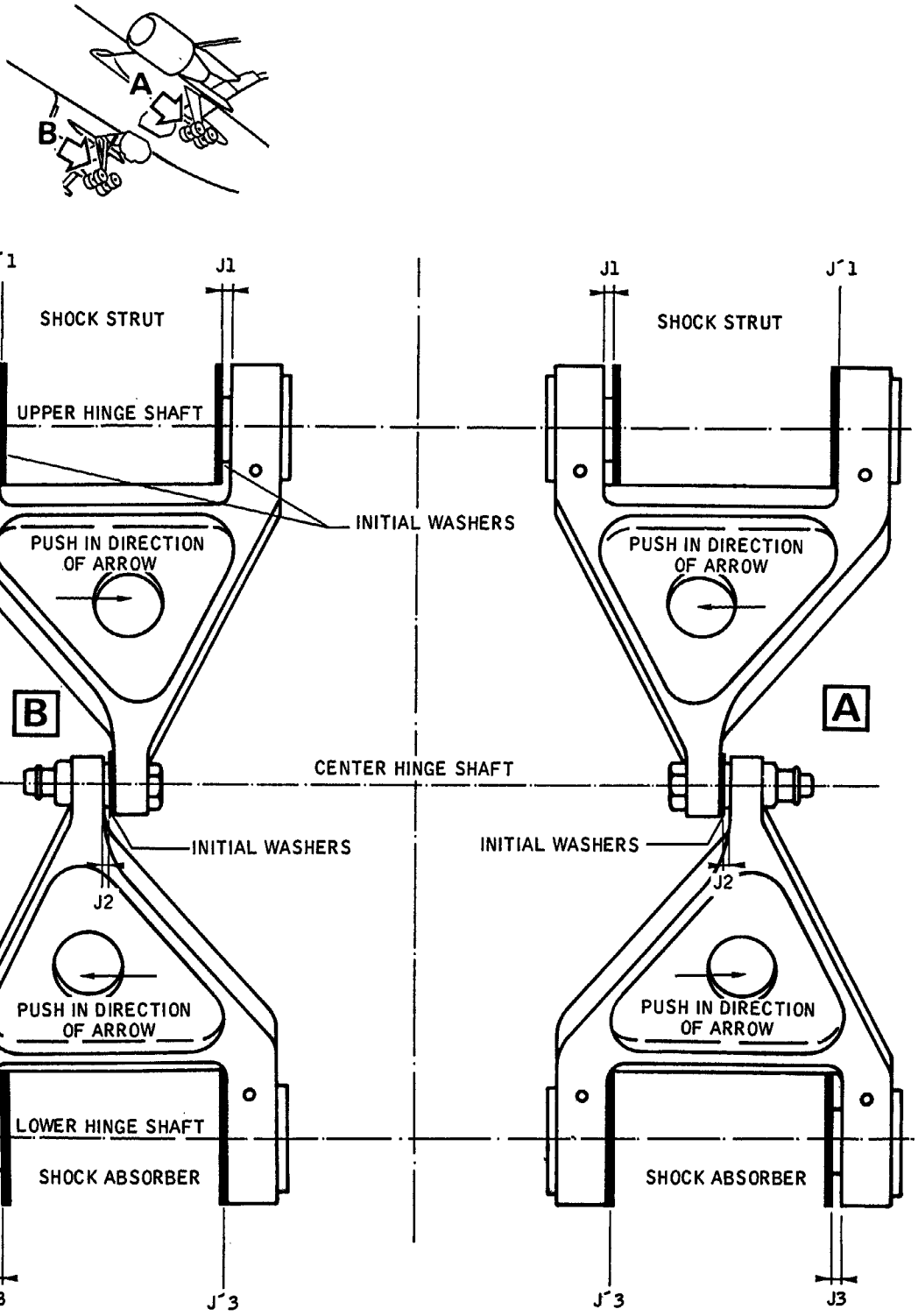
(a)Upper hinge shaft (J1) : 0.6 mm (0.0234 in.)

(b)Center hinge shaft (J2) : 0.3 mm (0.0118 in.)

(c)Lower hinge shaft (J3) : 0.6 mm (0.0234 in.)

C. Take-Up of Play at Torque Link Hinge Points

Excessive play is taken up by replacing the initial washers by special thicker washers. The dimensions and locations of the special washers are given in the following table



Main Gear Torque Links -
Location of Play Measurement Points
Figure 801

LOCATION	THICKNESS	
	mm	inches
	2.2	0.0866
UPPER HINGE SHAFT	2.4	0.0944
	2.6	0.1023
	6.2	0.2440
CENTER HINGE SHAFT	6.4	0.2519
	2.2	0.0866
LOWER HINGE SHAFT	2.4	0.0944
	2.6	0.1023

D. Installation of Special Washers

NOTE : - Installation of special washers requires prior removal of hinge shaft concerned (Ref. 32-11-27, P. Block 401).

(1)Operating mode for upper hinge shaft and lower hinge shaft.

Play values J1 and J3 measured in Para. B. must be divided into two to take up play symmetrically in J1/J'1 and J3/J'3 using previously mentioned washers.

NOTE : Make certain that minimum end play of 0.05 mm (0.0019 in.) is maintained at upper and lower hinge shafts ; rework special washers if necessary.

(2)Operating mode for center hinge shaft

Measure dimension "e" (Ref. Fig. 802) on both ends e1 and e2 of the torque link arms and use the formula below to determine thickness R of the washer to be installed :

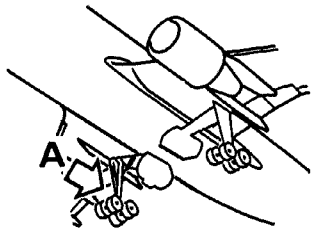
$$R = 54 \text{ mm } (2.126 \text{ in.}) - \frac{e1 + e2}{2}$$

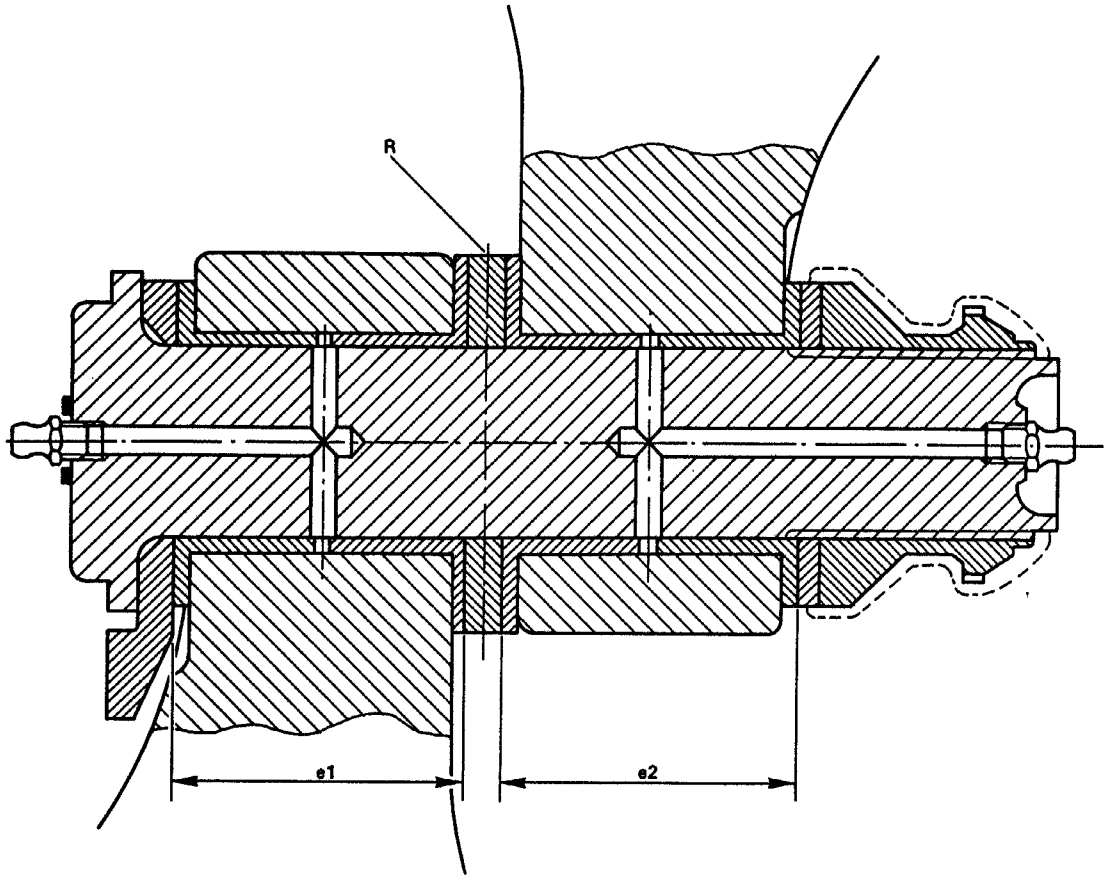
E. Close-Up

(1)Install torque link hinge shafts (Ref. 32-11-27, P. Block 401).

(2)Grease torque link hinge points (Ref. 12-22-32, P. Block 1).

(3)Lower the aircraft onto its wheels (Ref. 07-11-00, P. Block 1).





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Calculation of Play on Center Hinge Shaft
Figure 802

BRAKE BARS - REMOVAL/INSTALLATION

WARNING : CHECK THAT THE LANDING GEAR GROUND SAFETIES INCLUDING WHEEL CHOCKS ARE IN POSITION.

1. Equipment and Materials

	ITEM	DESIGNATION
	A. Material No. 04-004	Common Greases (Ref. 20-31-00)
R	B. Material No. 04-022	Common Greases (Ref. 20-31-00)
R	C. Material No. 09-001	Sealants (Ref. 20-31-00)
R	D. Material No. 11-002	Cleaning Agents (Ref. 20-31-00)
	Referenced Procedures	
	- 12-22-32, P. Block 1	Landing Gear Lubrication
	- 12-37-32, P. Block 1	Wheel Replacement

2. Procedure

A. Job Set-Up
(1)On panel 4VU
- make certain that landing gear control lever is in **DOWN** position and prohibit its operation by displaying a warning notice.

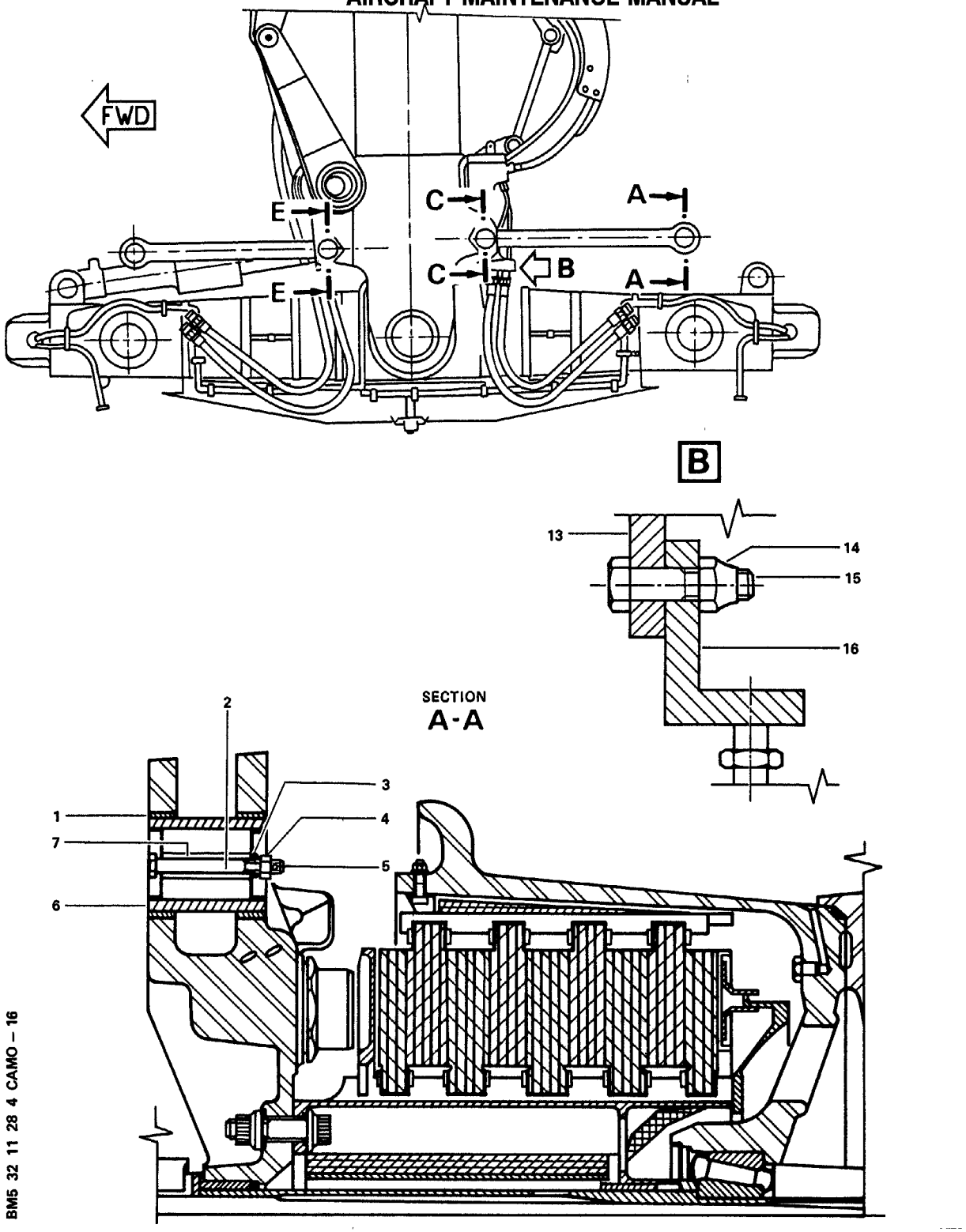
(2)Between First Officer's and Third Occupant's seats
- make certain that Free Fall extension control handle is in Normal position.

(3)On panel 9VU
- make certain that the **PARKING BRAKE** handle is in Normal position.

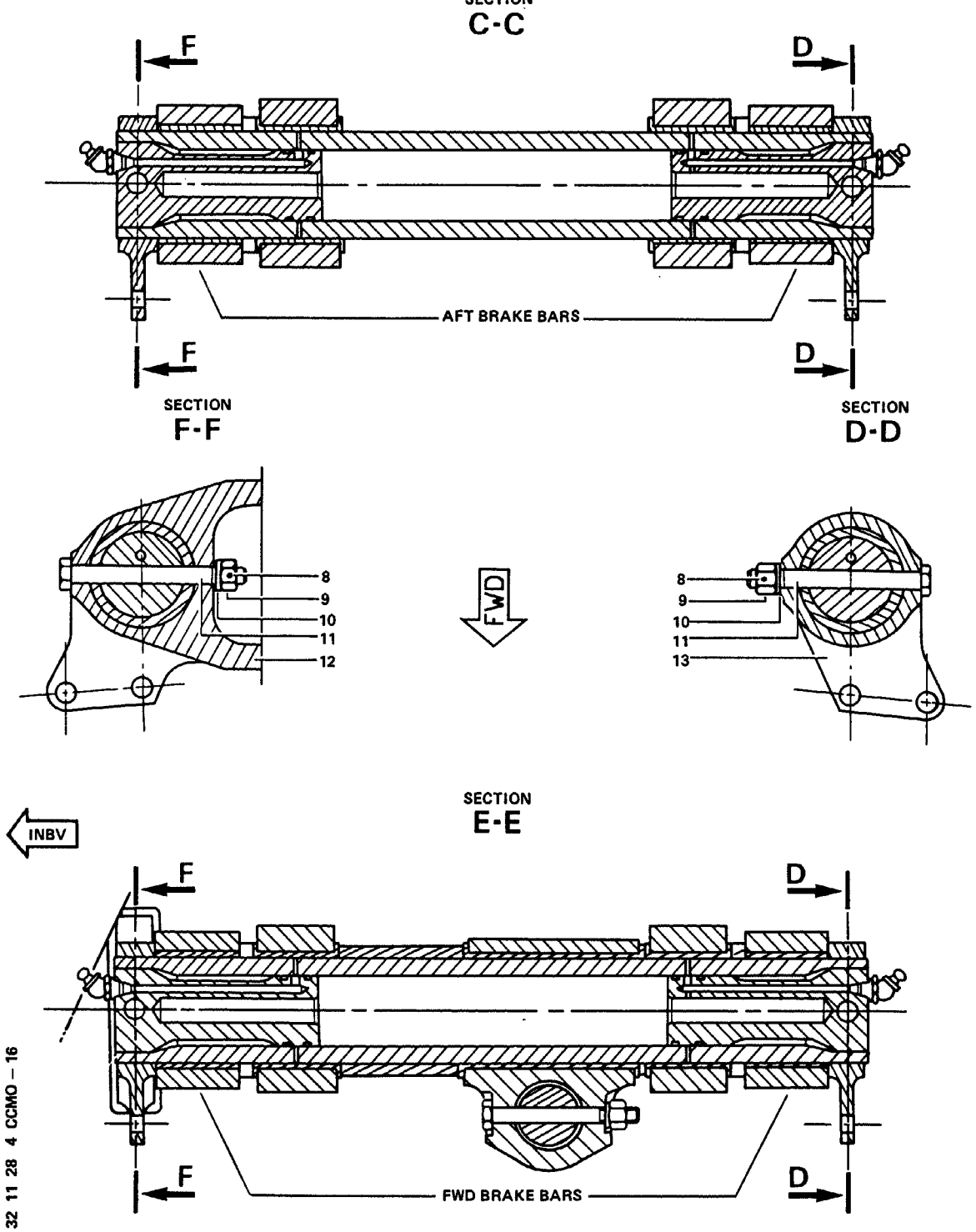
(4)Remove main gear wheel adjacent to brake bar concerned (Ref. 12-37-32, P. Block 1).

B. Removal
(Ref. Fig. 401, 402)
(1)Remove rubber protective coating from parts to be removed with a spatula taking care not to damage the surface finish.
(2)Remove brake connecting block (16) located at end of shock absorber/brake bar shaft.
(a)Remove nut (14) and bolt (15).
(b)Remove connecting block (16).
(3)Disconnect brake bar.
(a)Remove cotter pin (5), nut (4) and bolt (2), retain washer (3).
(b)Remove caps (1) and retain for installation. Retain spacer (7).
(c)Remove hollow shaft (6).
NOTE : If shaft extraction is difficult, use tool D46229.
(4)Disconnect forward or aft bar from shock absorber
(a)Remove cotter pin (8).
(b)Remove nut (9), washer (10), bolt (11) and support (12) (inner) or (13) (outer).
(5)Rotate brake bar upwards, free it from shock absorber shaft and remove.

C. Preparation of Replacement Component



Main Gear - Brake Bars - Fig. 1/2
Figure 401



Main Gear - Brake Bars - Fig. 2/2
Figure 402

(1)Depreserve replacement brake bar, clear with Material No.11-002 and dry with filtered compressed air.
(2)Preparation for installation of a brake bar.
(a)Clean all parts, in particular bushes and shafts, with Material No.11-002 and dry with filtered compressed air.
(b)Check that components are in good condition.
1 Check that there are no signs of oxidation, pitting or flaking, in particular of chromed surfaces.
2 Check that there are no signs of cracks, or impact damage etc.
(c)Check that grease nipples are in good condition.
(d)Replace any defective components.
R (e)Lightly grease bushes and shafts with Material No. 04-004 or
R Material No. 04-022 to facilitate installation.
R NOTE : Do not mix Material No. 04-004 with Material No. 04-022.
R You can use Material No. 04-022 as an alternative to
R Material No. 04-004. Clean and degrease the parts before you use
R Material No. 04-022.

D. Installation
(1)Connect brake bar to shock absorber.
(a)Install end of bar on shock absorber shaft.
(b)Install support (12) or (13).
NOTE : Support (12) is positioned inboard, support (13) is positioned outboard.
(c)Align shaft and support and install bolt (11).
(d)Install washer (10) and nut (9), TORQUE to between 0.9 and 1.0 m.daN (79.5 to 88.5 lbf.in.). Safety nut with cotter pin (8).
(2)Connect brake bar to brake.
(a)Install shaft (6), spacer (7) and the two caps (1).
(b)Install bolt (2), washer (3), nut (4). TORQUE nut (4) to between 0.9 and 1.0 m.daN (79.5 and 88.5 lbf.in.).
(c)Secure nut (4) with cotter pin (5).
(3)Install brake connecting block (16).
(a)Position brake connecting block (16) on support (12) or (13).
(b)Install bolt (15) and nut (14), tighten nut
(4)Apply bead of Material No.09-001 on hardware.
R (5)Lubricate brake bar with Material No. 04-004 or Material No. 04-022
R (Ref. Fig. 12-22-32, P. Block 1).
(6)Install main gear wheel removed during removal (Ref. 12-37-32, P. Block 1).

E. Test
(1)Check that there are no signs of leakage.

F. Close-Up
(1)Make certain that working area is clean and clear of tools and miscellaneous items of equipment.

R HARNESS - MLG SYSTEMS - REMOVAL/INSTALLATION

R WARNING : CHECK THAT THE LANDING GEAR GROUND SAFETIES INCLUDING WHEEL CHOCKS ARE IN POSITION.

BEFORE APPLYING OR RELIEVING HYDRAULIC SYSTEM PRESSURE, MAKE CERTAIN THAT THE TRAVEL RANGES OF THE CONTROL SURFACES ARE CLEAR.

BEFORE PRESSURIZING HYDRAULIC SYSTEMS, CHECK THAT ALL CONTROLS ARE SET TO CORRESPOND WITH THE ACTUAL POSITION OF THE SERVICES THEY OPERATE.

BEFORE POWER IS SUPPLIED TO THE AIRCRAFT, MAKE CERTAIN THAT ELECTRICAL CIRCUITS UPON WHICH WORK IS IN PROGRESS ARE ISOLATED.

BEFORE PRESSURIZING HYDRAULIC SYSTEMS, MAKE CERTAIN THAT HYDRAULIC SYSTEM UNDER MAINTENANCE HAS BEEN ISOLATED.

CAUTION : DO NOT MAKE KINKS IN THE ELECTRICAL HARNESSES OR PULL THE RELATED CABLES. THIS WILL PREVENT DAMAGE.

NOTE : Each MLG is equipped with two electrical harnesses (1 and 2).
Harness 1 corresponds to the forward wheels 1-2 (3-4).
Harness 2 corresponds to the rear wheels 5-6 (7-8).
Each harness is divided into three parts (upper, intermediate and lower) which can be removed separately.

1. Equipment and Materials

ITEM	DESIGNATION
A.	Access Platform 2.6 m (8 ft. 7 in.)
B.	Blanking caps
C.	Circuit Breakers Safety Clips
E.	Safety Collars
F.	Warning Notices
G.	Safety Barriers
H. Material No. 05-047	Special Materials (Ref. 20-31-00)
J. Material No. 09-001	Sealants (Ref. 20-31-00)
K. Material No. 11-002	Cleaning Agents (Ref. 20-31-00)
L. Material No. 11-004A	Cleaning Agents (Ref. 20-31-00)
Referenced Procedures	
- 07-11-00, P. Block 1	Jacking for Aircraft Maintenance Operations
- 12-12-29, P. Block 1	Hydraulics
- 29-10-00, P. Block 301	Main Hydraulic Power - Pressurization/ Depressurization
- 29-14-00, P. Block 301	Hydraulic Reservoir Pressurizing System
- 32-00-00, P. Block 501	Landing Gear
- 32-11-14, P. Block 401	Bogie Beam
- 32-12-11, P. Block 301	Main Gear Main Door - (Ground Door (s) Opening)
- 32-31-00, P. Block 501	Normal Extension and Retraction
- 32-42-00, P. Block 501	Normal Braking

2. Procedure

A. Job Set-Up
(1)On panel 4VU :
- make certain that landing gear Normal control lever is in DOWN position and prohibit its operation by displaying a warning notice.

(2)Between First Officer's and Third Occupant's seats
- make certain that landing gear Free Fall extension control handle is in Normal position and prohibit its operation by displaying a warning notice.

(3)Open, safety and tag the following circuit breakers :

PANEL	SERVICE	IDENT.	LOCATION
133VU	HYDRAULIC/L/G PROX DET/& RELAYS SYS2/FLT/GND	1GB	331/V52
133VU	HYDRAULIC/L/G PROX DET/& RELAYS SYS1/RETRACT CTL	2GB	332/U51
	WARNING : PRIOR TO OPENING CIRCUIT BREAKER 119GB LOCATED ON PANEL 133VU, TAKE THE APPROPRIATE SAFETY MEASURES (REF. 32-00-00, P. BLOCK 501).		
133VU	HYDRAULIC/L/G PROX DET/& RELAYS SYS1/FLT/GND	119GB	333/U52
133VU	HYDRAULIC/BRAKES SYSTEM/CTL UNIT/NORM	2GG	332/U55
133VU	HYDRAULIC/BRAKES SYSTEM/CTL UNIT/SUPPLY	41GG	332/U56
133VU	HYDRAULIC/BRAKES SYSTEM/CTL UNIT/NORM	4GG	331/V55
133VU	HYDRAULIC/BRAKES SYSTEM/CTL UNIT/SUPPLY	42GG	331/V56
133VU	HYDRAULIC/BRAKES SYSTEM/CTL UNIT/CTL &/WARN	5GG	333/T56
133VU	HYDRAULIC/BRAKES SYSTEM/CTL UNIT/LAND/RECOVERY/SUPPLY	98GG	333/T55
133VU	HYDRAULIC/BRAKES/TEMP/WARN	17GW	331/V54
133VU	HYDRAULIC/BRAKES/TEMP/DET/UNIT	1GW	335/R58
133VU	HYDRAULIC/ELEC PUMPS WARN	4GE	333/T51

(4)Jack up aircraft until wheels are clear from ground (Ref. 07-11-00, P. Block 1).
(5)Position access platform.
(6)Position safety barriers prohibiting access to MLG and gear door travel ranges.
WARNING : MAKE CERTAIN THAT THE DOOR TRAVEL RANGES ARE CLEAR.
(7)Open main gear doors (Ref. 32-12-11, P. Block 301).
WARNING : WHEN DOORS ARE OPEN MAKE CERTAIN THAT SAFETY COLLARS ARE POSITIONED ON DOOR ACTUATING CYLINDERS.
(8)Depressurize Green hydraulic system (Ref. 29-10-00, P. Block 301) and prohibit its pressurization by displaying a warning notice :
- on Green hydraulic system ground connectors,
- on panel 427VU to prohibit operation of Green electric pumps (ELEC PUMPS pushbutton switch).

(9)Depressurize Yellow hydraulic system (Ref. 29-10-00, P. Block 301) and prohibit its pressurization by displaying a warning notice :

- on Yellow hydraulic system ground connectors,
- on panel 427VU to prohibit operation of Yellow PWR TRANSF unit (RH PTU pushbutton switch).

(10)Depressurize Green and Yellow hydraulic reservoirs (Ref. 29-14-00, P. Block 301) and prohibit their pressurization by displaying a warning notice :
- on panel 429VU to prohibit APU starting,
- on hydraulic reservoir pressurization connector.

B. Removal

(1)Remove the lower electrical harness (Ref. 32-11-14, P. Block 401).

(2)Remove the intermediate electrical harness (Ref. Fig. 401)

(a)Disconnect the electrical harness at level of connections (hydraulic valves, proximity sensors, upper electrical harness) and cap electrical connectors.

CAUTION : BEFORE ANY CABLE REMOVAL, IDENTIFY :
- THE LOCATION OF THE PROTECTIVE GROMMETS INSTALLED ON CABLES,
- THE ROUTING OF EACH CABLE,
- THE INSTALLATION OF CLAMPS.

(b)At the lower part of MLG leg :

1 Remove two screws (28) and washers (29) and clamp (27).

2 Remove screw (24) and washer (23) from bracket (18). Remove three clamps (19),(20) and (22), spacer (21), bonding strip (26) and cover (25).

3 Remove four screws (30) and washers (31) which attach casing (32) to MLG leg. Remove casing (32).

4 Remove four screws (1) and disconnect electrical connectors (2) and (5) from bracket (3). Retain gasket (4) and cap electrical connectors.

5 Remove two screws (7), washers (6) and junction box (9) from MLG leg.

6 Remove screws (34), washers (35) and clamps (33) from MLG leg (36).

7 Temporarily attach the electrical harness to MLG leg.

(c)On the MLG leg :

1 Remove nuts (17), washers (16) and block halves (15) from rail bracket (14).

(d)At the upper part of MLG leg :

1 Temporarily attach the electrical harness to MLG leg.

2 Remove screw (13), washer (12) and block half (11) from bracket (10).

(e)Remove the intermediate electrical harness from MLG.

(3)Remove the upper electrical harness (Ref. Fig. 402)

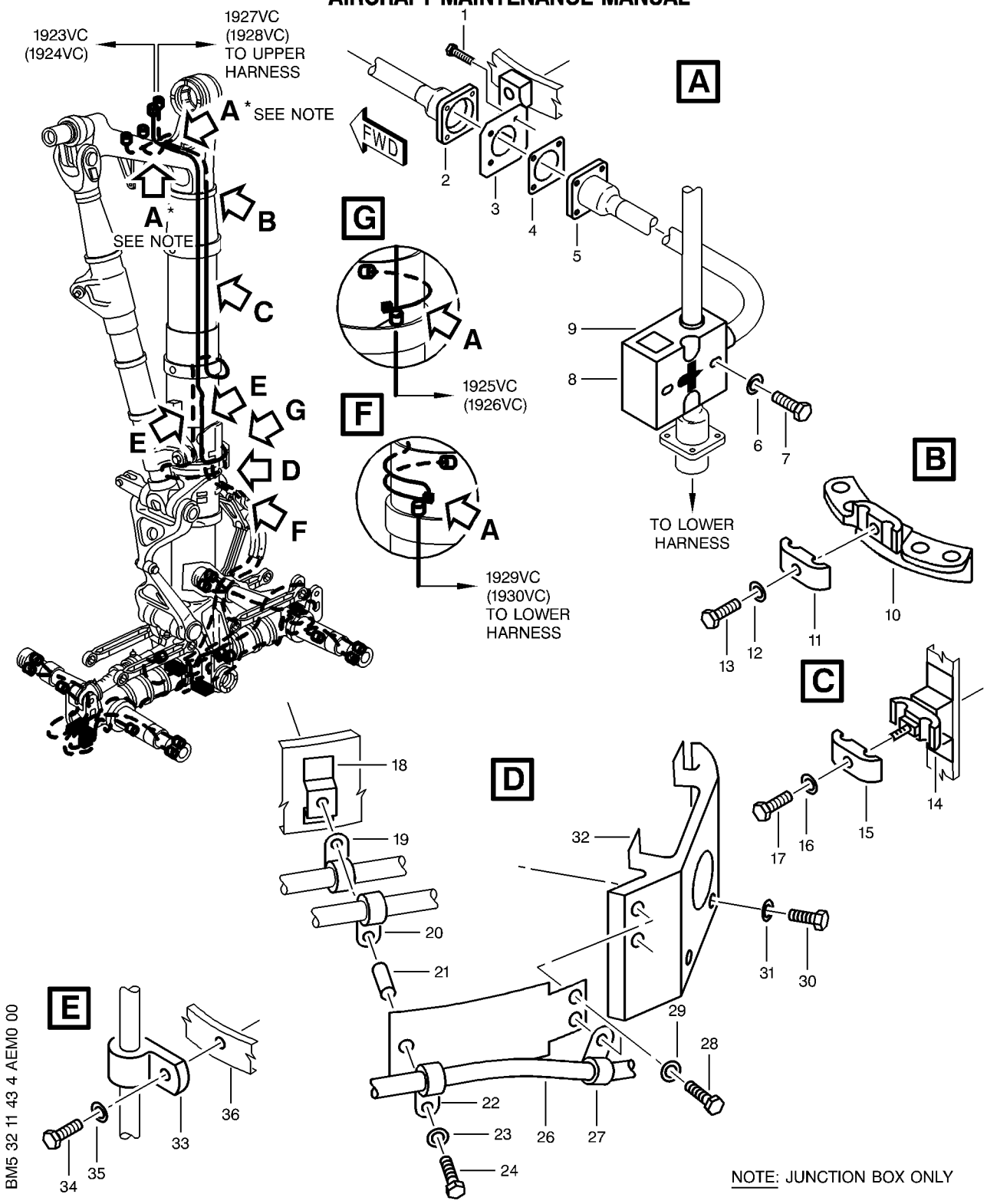
(a)Disconnect the electrical harness at level of connections and cap electrical connectors.

(b)On the upper arm of lock link (8), remove screw (12), block halves (10) and (11), washer (7) and nut (6). Retain pin (9).

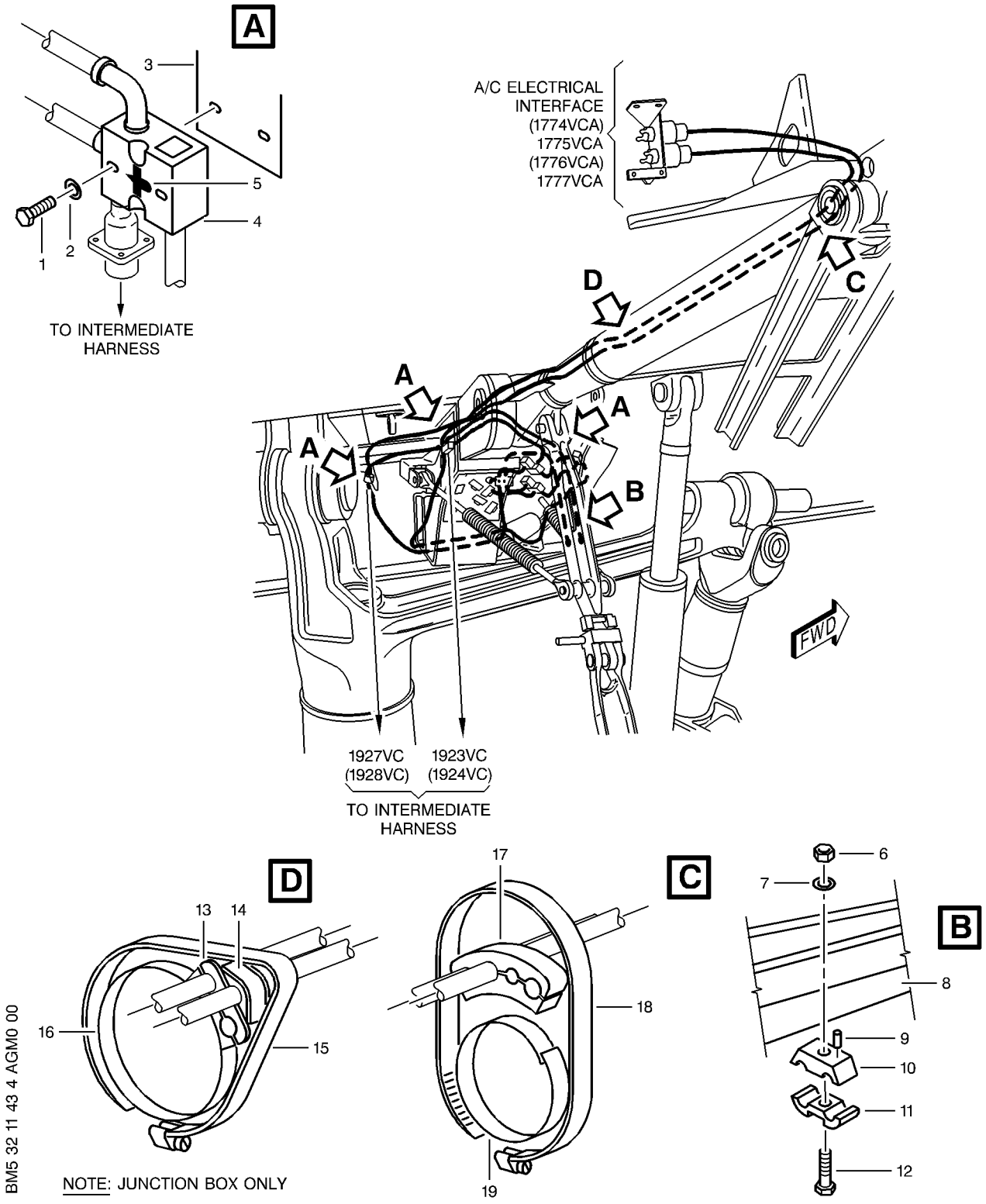
(c)At level of cross brace assembly :
1 Temporarily attach the electrical harness to both ends of the cross brace assembly.
2 Unscrew clamp (18) and disengage the cables from block (17).
3 Unscrew clamps (15) and disengage the cables from blocks (13) and (14).
4 Remove two screws (1), washers (2) and junction box (4) from MLG part (3) (four units).
(d)Remove the upper electrical harness from MLG.
(4)Remove the TPIS electrical harness
(Ref. Fig. 403)
(a)Remove the lower electrical harness (Ref. 32-11-14, P. Block 401).
(b)Remove the upper electrical harness
1 Disconnect the electrical harness at level of connections and cap electrical connectors.
2 Remove nut (1), washer (2), clip (4) and clamp (3) from barrel clamp (5).
3 Remove screws (9), washers (8) and clamps (7) from MLG rail bracket (6).
4 Remove the TPIS electrical harness from MLG.

C. Preparation of Replacement Component
(1)Depreserve replacement electrical harness. Clean with Material No. 11-002 and dry with filtered compressed air.
(2)Clean the attachment hardware with Material No. 11-004A and dry with filtered compressed air.
(3)Apply a light coat of Material No. 05-047 to the threads of all nuts and screws.

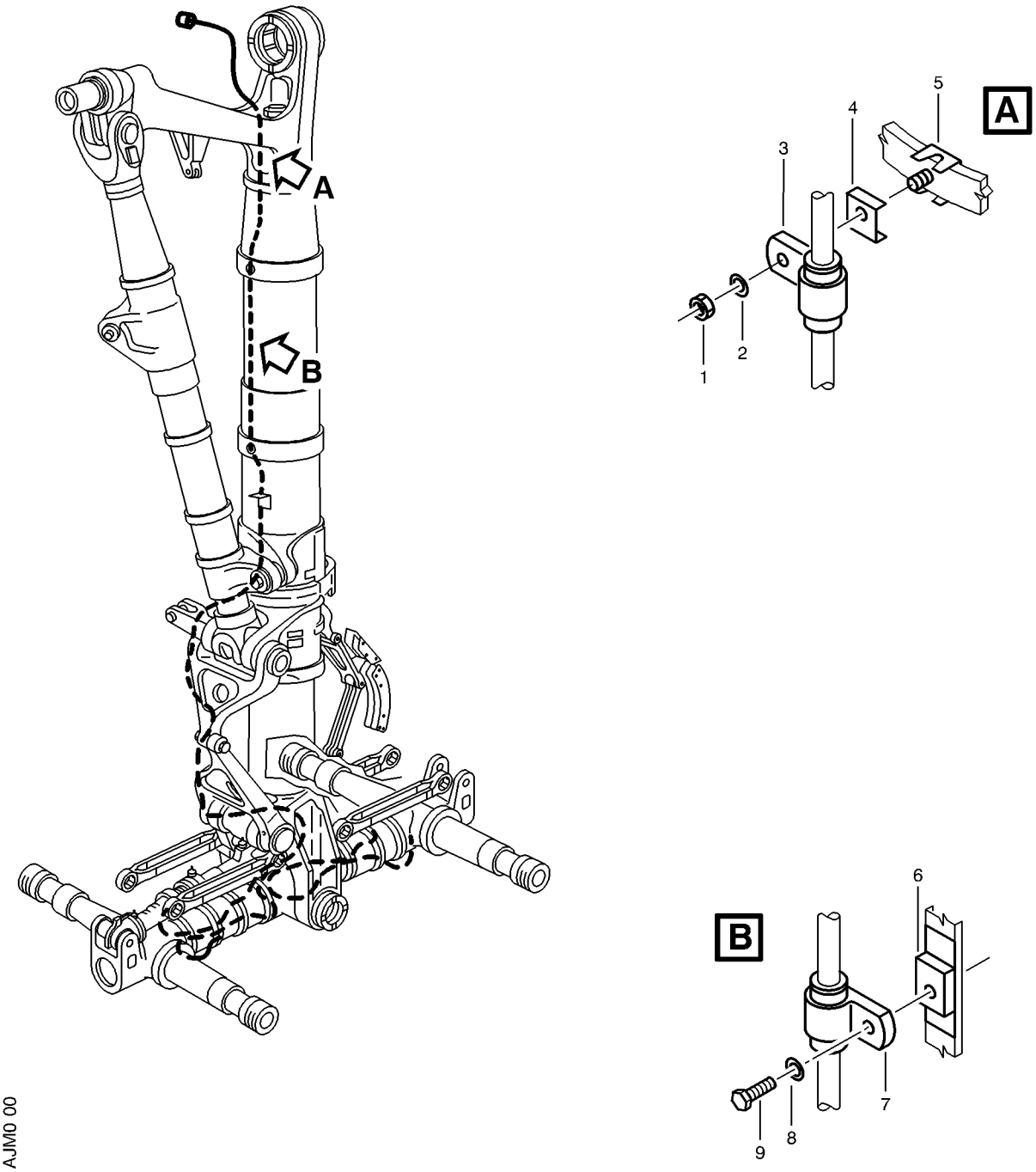
D. Installation
CAUTION : INSTALL AND ROUTE CABLES AS IDENTIFIED DURING REMOVAL (PROTECTIVE GROMMETS, CLAMPS AND TY-RAP TIES).
(1)Install the upper electrical harness
(Ref. Fig. 402)
(a)Put the upper electrical harness in position and temporarily attach it to the cross brace assembly and to MLG parts.
(b)Remove all caps from connectors and connect the electrical harness.
(c)Make certain that the cables are correctly routed.
(d)Install junction boxes (4) with washers (2) and screws (1) on MLG part (3). Tighten screws (1).
(e)Install blocks (13) and (14) and clamps (15). Tighten clamps (15).
NOTE : Make certain that adhesive tapes (16) and (19) are in good condition. If necessary, replace the adhesive tapes.
(f)Install block (17) and clamp (18). Tighten clamp (18).
(g)Install block halves (10) and (11) with pin (9), washer (7), screw (12) and nut (6) on the upper arm of lock link (8). Tighten nut (6).
(h)Check that the cables are not bent and do not interfere with MLG parts.
(j)Check that the protective grommets are located as identified during



MLG Intermediate Electrical Harness
Figure 401



MLG Upper Electrical Harness
Figure 402



TPIS Electrical Harness
Figure 403

removal.
(k)Secure the junction box clips with TY-RAP ties (5).
(l)Apply a bead of Material No. 09-001 to hardware (exposed parts of all nuts, screws and on TY-RAP ties installed on the junction box clips).
(2)Install the intermediate electrical harness
(Ref. Fig. 401)
(a)Put the intermediate electrical harness in position and temporarily attach it to MLG leg.
(b)Remove all caps from connectors and connect the electrical harness.
(c)Make certain that the cables are correctly routed.
(d)Install junction boxes (9) with washers (6) and screws (7) (lower part of MLG leg). Tighten screws (7).
(e)Install block half (11) with washer (12) and screw (13) on bracket (10) (upper part of MLG leg). Tighten screw (13).
(f)Install block halves (15) with washers (16) and nuts (17) on rail bracket (14). Tighten nuts (17).
(g)Install clamps (33) with washers (35) and screws (34) on the lower part of MLG leg (36). Tighten screws (34).
(h)Install gasket (4), connect connectors (2) and (5) to bracket (3) of lower part of MLG leg and install four screws (1). Tighten screws (1).
(j)Apply a bead of Material No. 09-001 on screw heads and around connector (2).
(k)At the lower part of MLG leg, install casing (32) with four screws (30) and washers (31). Tighten screws (30).
(l)On casing (32), install cover (25) and bonding strip (26) with screws (28), washers (29) and clamp (27). Tighten screws (28).
(m)On bracket (18), install clamps (22), (20) and (19) with spacer (21), washer (23) and screw (24). Tighten screw (24).
(n)Check that all the cables are not bent and do not interfere with MLG parts.
(p)Check that all the protective grommets are located as identified during removal.
(q)Secure the junction box clips with TY-RAP ties (8).
(3)Install the lower electrical harness (Ref. 32-11-14, P. Block 401).
(4)Install the TPIS electrical harness
(Ref. Fig. 403)
(a)Install the upper electrical harness
1 Temporarily attach the electrical harness to MLG leg.
2 Remove all caps from connectors and connect the electrical harness.
3 Make certain that the cable is correctly routed.
4 Install clamp (3) with clip (4), washer (2) and nut (1) on barrel clamp (5). Tighten nut (1).
5 Install clamps (7) with washers (8) and screws (9) on MLG rail bracket (6). Tighten screws (9).
6 Check that the cable is not bent and does not interfere with MLG parts.
7 Apply a bead of Material No. 09-001 to hardware (exposed part of all screws and nuts).
(b)Install the lower electrical harness (Ref. 32-11-14, P. Block 401).

E. Tests

(1)Carry out a continuity test of proximity detectors (Ref. 32-00-00, P. Block 501, paragraph 3.).
(2)Carry out a Normal extension and retraction test (Ref. 32-31-00, P. Block 501).
(3)Carry out a Normal braking operational test (Ref. 32-42-00, P. Block 501).
NOTE : After completion of retraction/extension test, check that the electrical harness is in good condition.

F. Close up
(1)Remove the access platform.
WARNING : AFTER CLOSING CIRCUIT BREAKER 119GB, PERFORM APPROPRIATE PROCEDURE (REF. 32-00-00, P. BLOCK 501).
(2)Remove safety clips and tags and close the circuit breakers 1GB, 2GB, 119GB, 2GG, 4GG, 5GG, 41GG, 42GG, 48GG, 1GW, 17GW, 4GE and if installed, 1GV.
(3)Make certain that working area is clean and clear of tools and miscellaneous items of equipment.
WARNING : MAKE CERTAIN THAT AREA UNDER THE AIRCRAFT IS CLEAR.
(4)Lower the aircraft onto its wheels (Ref. 07-11-00, P. Block 1).
(5)Replenish hydraulic reservoirs as necessary (Ref. 12-12-29, P. Block 1).
WARNING : MAKE CERTAIN THAT THE DOOR TRAVEL RANGES ARE CLEAR.
(6)Remove the safety collars and close MLG doors (Ref. 32-12-11, P. Block 301).
(7)Remove the safety barriers and the warning notices.
(8)Close access doors and remove ground handling and maintenance equipment.

MAIN GEAR DOORS - DESCRIPTION AND OPERATION

1. General

Each main landing gear is provided with three doors :
- One main door
- One secondary door
- One cylinder door.

2. Component Location

(Ref. Fig. 001)

FIN	FUNCTIONAL DESIGNATION	PANEL	ZONE	ACCESS DOOR	ATA REF.
	DOOR-MAIN GEAR MAIN, L/R		734 744		32-12-11
	DOOR-MAIN GEAR SECONDARY, L/R		733 743		32-12-13
	DOOR-MAIN GEAR CYLINDER, L/R		732 742		32-12-15
1206	ACTUATING CYL-MLG DOOR, L		147		32-31-35
1207	ACTUATING CYL-MLG DOOR, R		148		32-31-35

3. Main Door

(Ref. Fig. 002)

The main door is attached to the fuselage structure by 3 hinges and is operated by a hydraulic actuating cylinder.
The main door includes steps for gaining access to the hydraulics compartment
A mechanical control system enables the door to be released and opened (free fall) on the ground. Door closing is achieved by hydraulic pressure.

4. Cylinder Door

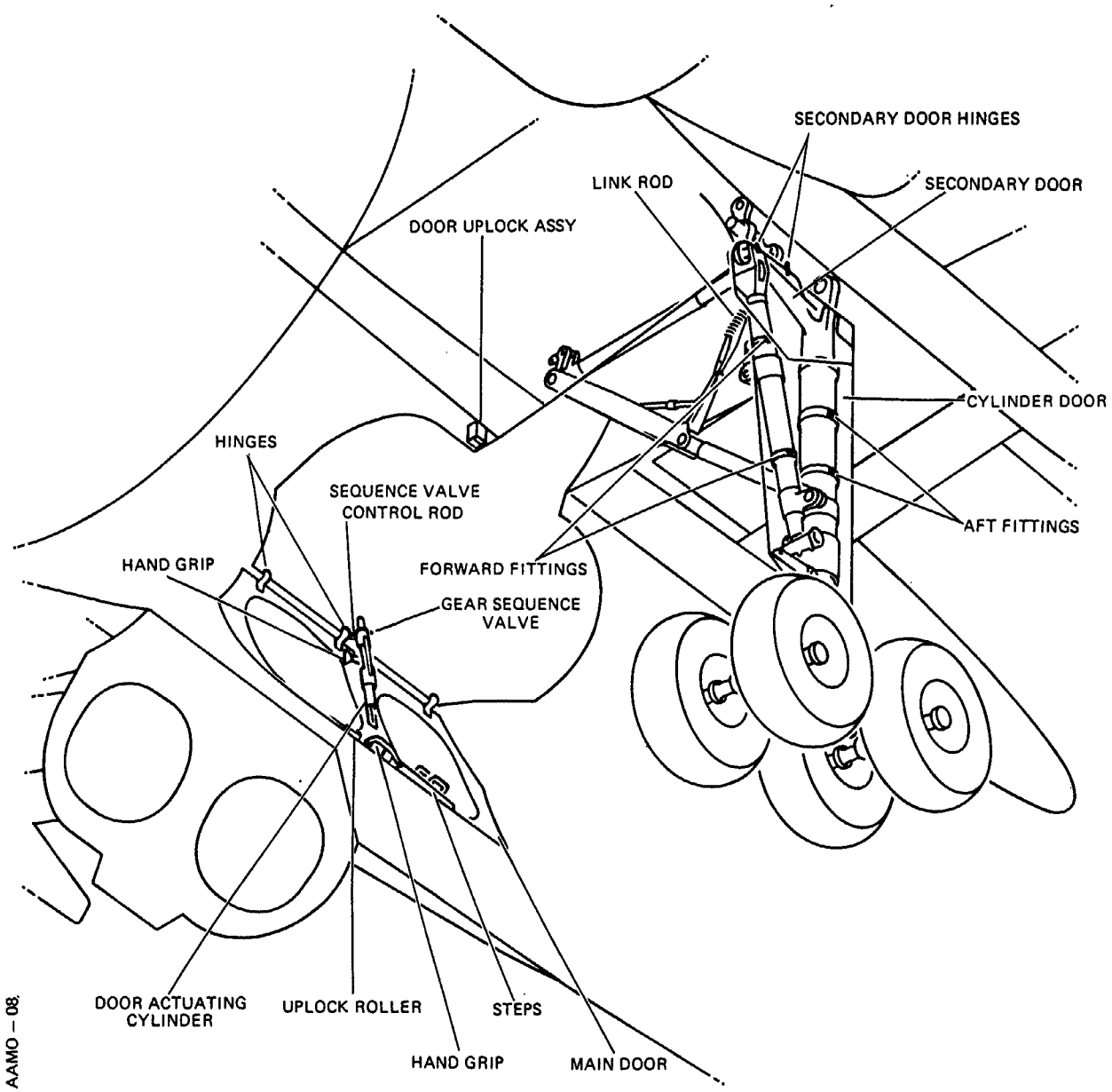
(Ref. Fig. 003)

The cylinder door is attached to the landing gear by 4 adjustable attachment fittings : 2 fork fittings on the shock strut and 2 adjustable rods on the drag strut.
A bonding jumper ensures electrical continuity with the shock strut.

5. Secondary Door

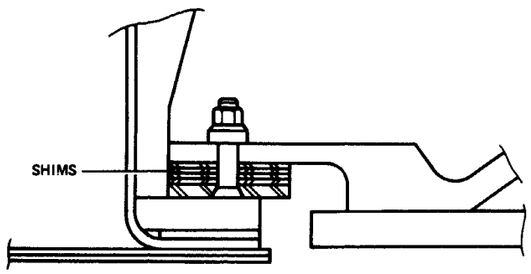
(Ref. Fig. 004)

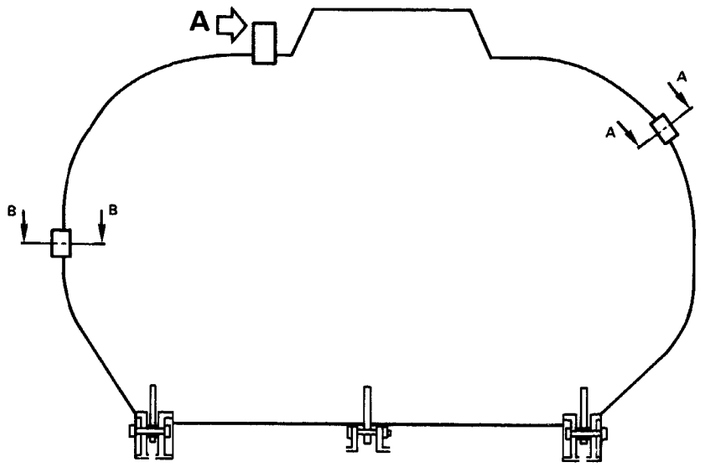
The secondary door is attached by 2 hinges to the wing panel adjacent to the landing gear well.
The secondary door follows the gear during extension and retraction by means of a pre-adjusted rod.

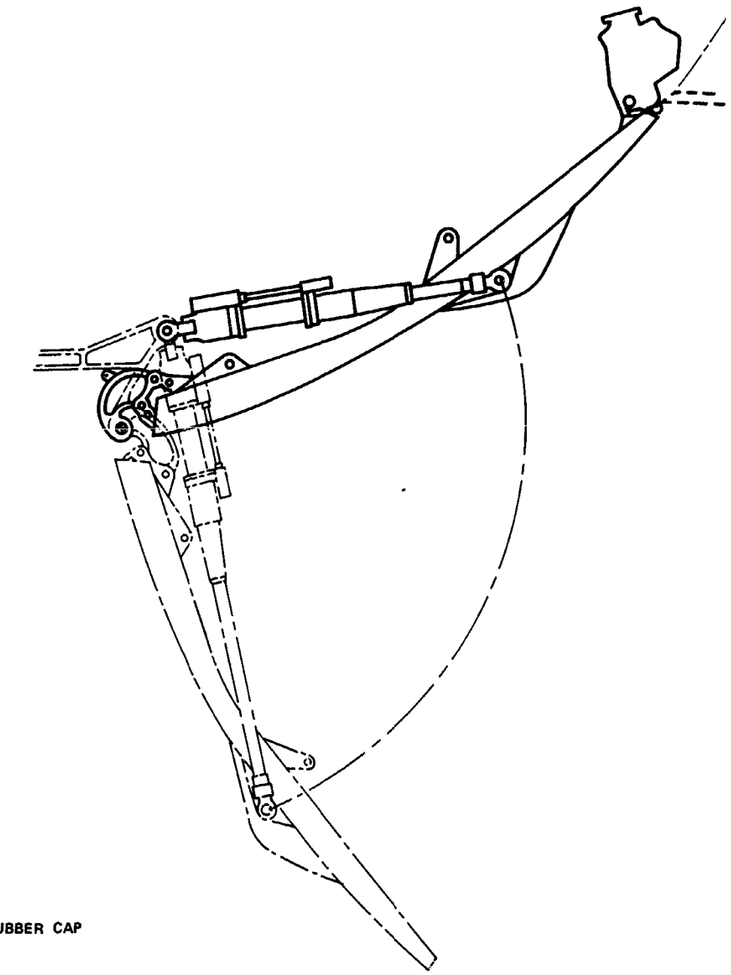


Main Gear Doors
Figure 001

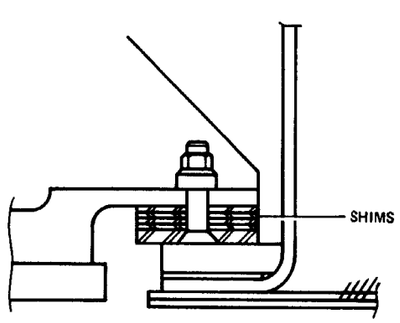
SECTION AA

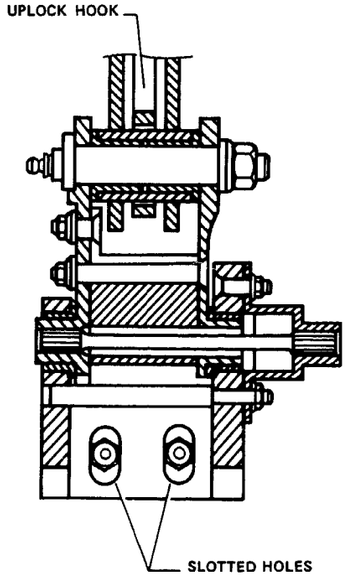


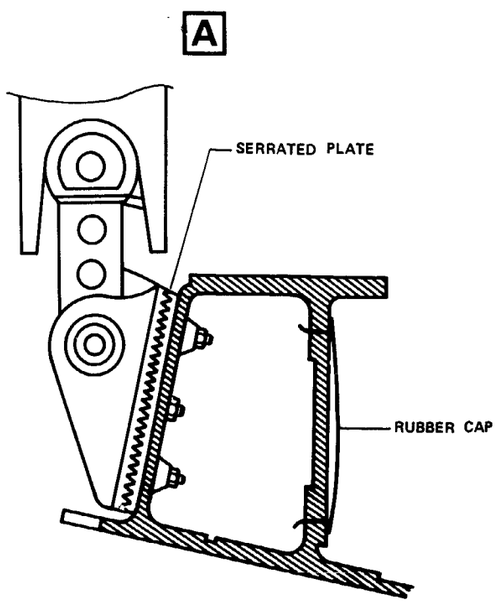




SECTION BB







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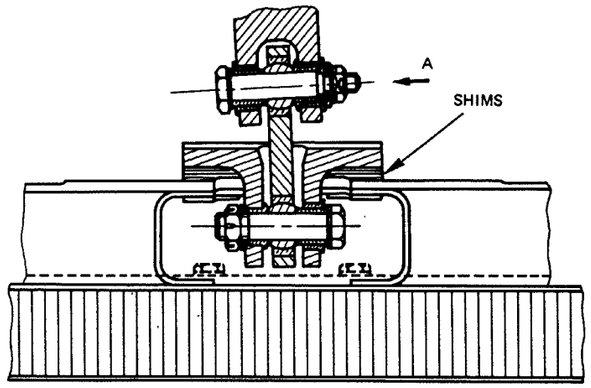
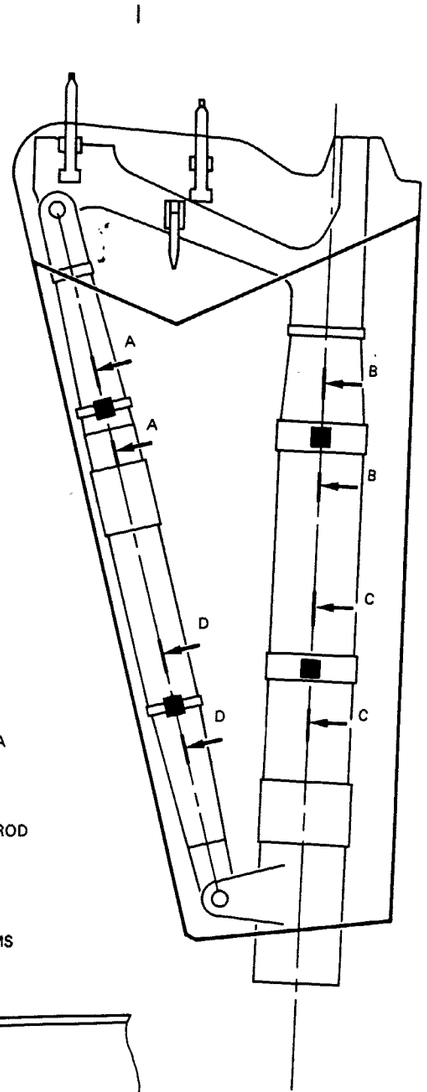
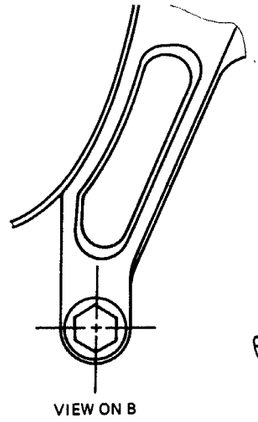
Main Gear Doors - Adjustment
Figure 002

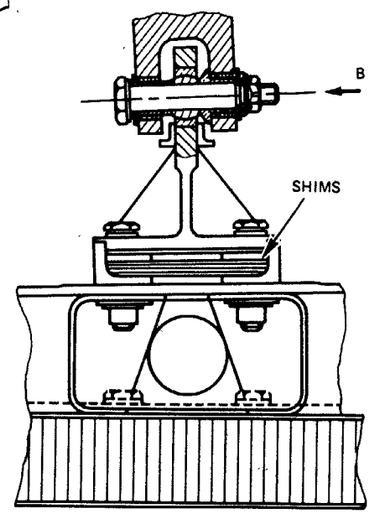


SECTION AA

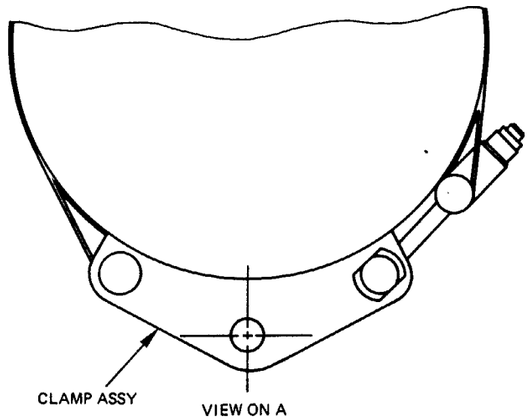


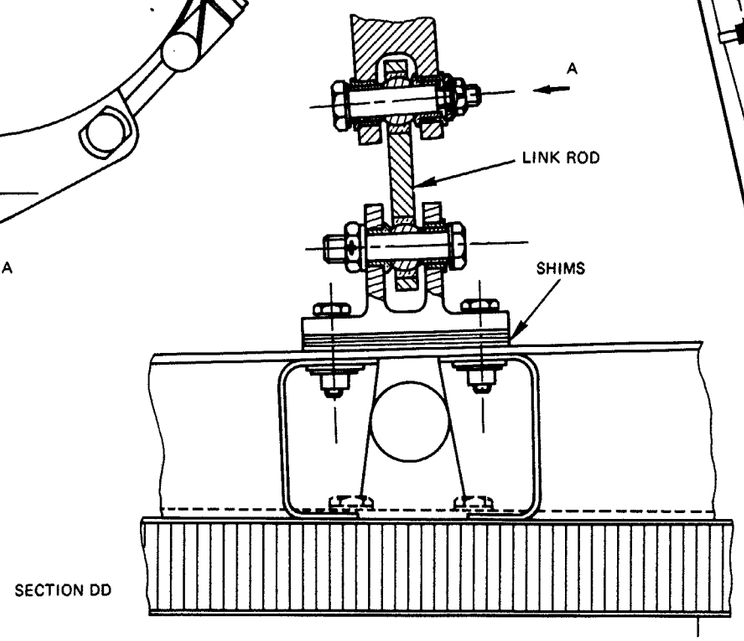


VIEW ON B



SECTION BB





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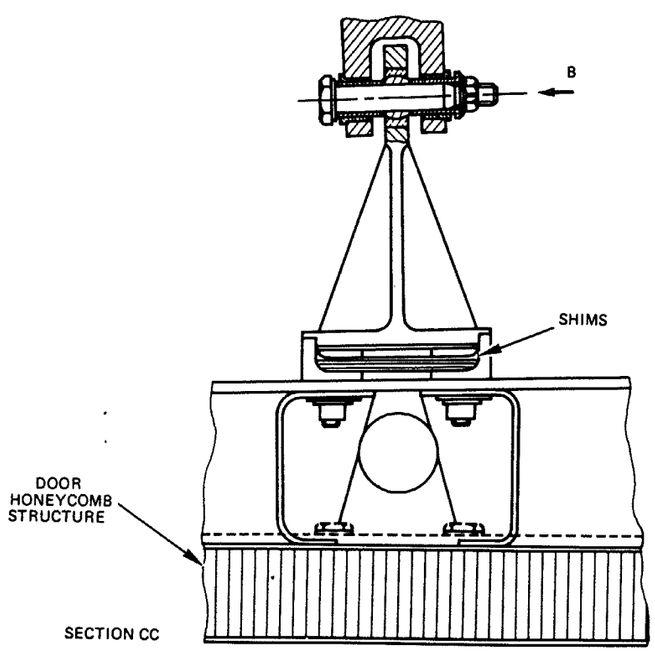

SECTION CC

Cylinder Door - Attachments
Figure 003

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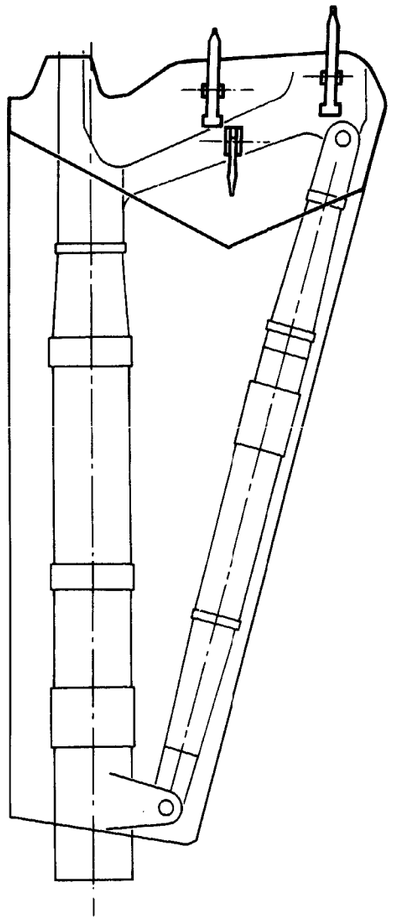

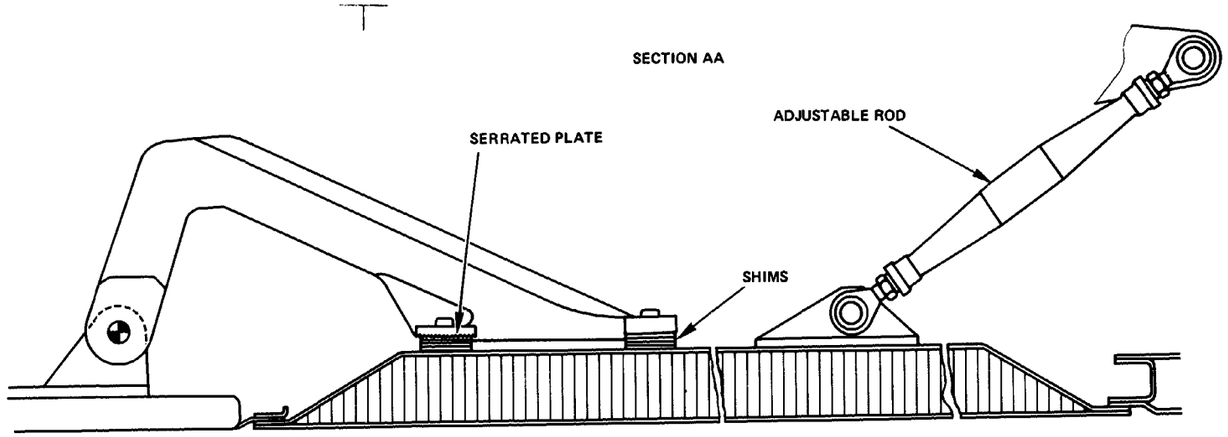

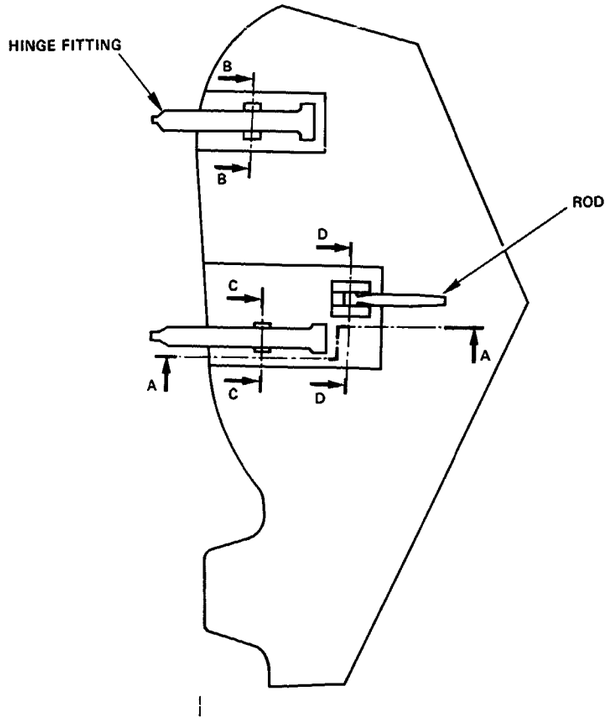

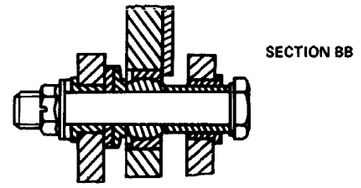

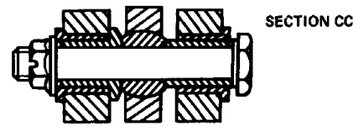

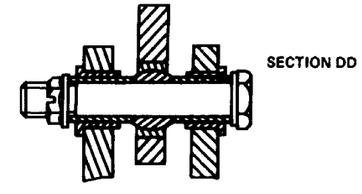

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Secondary Door - Attachments
Figure 004

MAIN GEAR MAIN DOOR - SERVICING (GROUND DOOR(s) OPENING)

WARNING : CHECK THAT THE LANDING GEAR GROUND SAFETIES INCLUDING WHEEL CHOCKS ARE IN POSITION.
BEFORE APPLYING OR RELIEVING HYDRAULIC SYSTEM PRESSURE, MAKE CERTAIN THAT THE TRAVEL RANGES OF THE CONTROL SURFACES ARE CLEAR.
BEFORE PRESSURIZING HYDRAULIC SYSTEMS, CHECK THAT ALL CONTROLS ARE SET TO CORRESPOND WITH THE ACTUAL POSITION OF THE SERVICES THEY OPERATE.

BEFORE PRESSURIZING HYDRAULIC SYSTEMS, MAKE CERTAIN THAT HYDRAULIC SYSTEM UNDER MAINTENANCE HAS BEEN ISOLATED.

1. Reasons for the Job

A. Main gear door opening for access to or removal of equipment installed in zones 147-148.

B. Landing Gear Door Closure
NOTE : Each landing gear door is provided with an independent closure system.
The doors may be closed by means of either :
- the Green hydraulic system electric pumps (Ref. 29-21-00, P. Block 301).
- or a hydraulic ground power cart (Ref. 29-10-00, P. Block 301).

2. Equipment and Materials

ITEM	DESIGNATION
A. 98A32101500000	Safety Collars
B.	Access Platform (2.60m) (8 ft. 7 in.)
C.	Safety Barriers
D.	Warning Notice
Referenced Procedures	
- 24-41-00, P. Block 301	AC External Power Control
- 29-14-00, P. Block 301	Hydraulic Reservoir Pressurizing System
- 29-21-00, P. Block 301	Green Auxiliary Power
or	
- 29-10-00, P. Block 301	Main Hydraulic Power - Pressurization/ Depressurization

3. Procedure

A. Job Set-Up
(1)On panel 4VU
- make certain that landing gear control lever is in **DOWN** position and prohibit its operation by displaying a warning notice.

(2)Between the First Officer's and Third Occupant's seats
- make certain that landing gear Free Fall extension control handle is in Normal position.

(3)Position access platform.

(4)Position safety barriers prohibiting access to gear door travel ranges.
(5)Energize the aircraft electrical network (Ref. 24-41-00, P. Block 301).

B. Door opening

NOTE : Ground door opening can be carried out :
- when hydraulic reservoirs are pressurized, Green system under pressure.
- without pressurization of hydraulic reservoirs.

WARNING : MAKE CERTAIN THAT THE DOOR TRAVEL RANGES ARE CLEAR.

(1)Opening of one main gear door.
(a)Open door ground opening control access door.
(b)Place control handle in **OPENED** position as follows :
- remove safety pin from handle
- press pushbutton and move handle downwards
- release pushbutton; handle locks automatically.

(c)Insert safety pin to lock handle.
(d)Make certain that door opens.

NOTE : It is possible that the doors will not open fully under their own weight, in which case it will be necessary to assist them manually at the end of travel.

(e)Install safety collar on door actuating cylinder.
(2)Opening of the other main gear door.
Procedure is the same as for other main gear door (Ref. paragraph (1)).

WARNING : IF ONE DOOR ONLY HAS BEEN OPENED, DO NOT WALK ON CLOSED DOOR. IN ORDER TO PREVENT UNTIMELY OPENING OF THE CLOSED DOOR DURING MAINTENANCE, POSITION A WARNING NOTICE ON ASSOCIATED GEAR DOOR GROUND OPENING CONTROL HANDLE TO PROHIBIT ITS OPERATION. DO NOT TOUCH FREE FALL EXTENSION CONTROL LINKAGE IN LANDING GEAR WELL.

C. Door Closure

(1)Make certain that Green hydraulic reservoir is pressurized (Ref. 29-14-00, P. Block 301).
(2)Make certain that door ground opening control handle associated with each opened door is in **OPENED** position and that Green hydraulic system is depressurized.
(3)Remove safety collar from actuating cylinder of door to be closed.

WARNING : IF OTHER GEAR DOORS ARE OPEN, MAKE CERTAIN THAT SAFETY COLLARS ARE INSTALLED ON DOOR ACTUATING CYLINDERS AND THAT DOOR GROUND OPENING CONTROL HANDLES ARE LOCKED IN OPENED POSITION BY MEANS OF SAFETY PINS EQUIPPED WITH STREAMERS.

(4)On panel 4VU
- make certain that landing gear control lever is in **DOWN** position.

(5)Energize the aircraft electrical network (Ref. 24-41-00, P. Block 301).
- make certain that electronics racks ventilation is correct.

(6)Pressurize Green hydraulic system either by means of Greem hydraulic pumps (Ref. 29-21-00, P. Block 301) or with a hydraulic ground power cart (Ref. 29-10-00, P. Block 301).

WARNING : MAKE CERTAIN THAT THE DOOR TRAVEL RANGES ARE CLEAR.

(7)Closure of one main gear door.
(a)Remove safety pin from handle.
(b)Press pushbutton at end of handle and release handle.

(c)Place handle in closed position. (Handle locks in closed position).
(d)Insert safety pin in handle.
(e)Make certain that door closes and uplocks.
(f)On panels 4VU and 76VU :
- make certain that amber DOOR legends, on gear door annunciators corresponding to closed doors, are off.

WARNING : IF DOORS FAIL TO CLOSE, GEAR DOOR GROUND OPENING CONTROL HANDLES SHALL BE RETURNED TO OPENED POSITION (PROBABLE CAUSE : INSUFFICIENT PRESSURE IN THE LANDING GEAR HYDRAULIC SYSTEM).

(g)Close door ground opening control access door.
(8)Closing of the other main gear door.
Procedure is the same as described for the first main landing gear door (Ref. paragraph (7)).
(9)Shut down hydraulic power (Ref. 29-21-00, P. Block 301) or (29-10-00, P. Block 301).

D. Close-Up
(1)De-energize the aircraft electrical network (Ref. 24-41-00, P. Block 301).
(2)Remove warning notices.
(3)Close access doors, remove access platforms and safety barriers.
(4)Remove all ground handling and maintenance equipment, standard and special tools, together with ground power and replenishing, all access equipment and miscellaneous items.

MAIN GEAR MAIN DOOR - REMOVAL/INSTALLATION

WARNING : CHECK THAT THE LANDING GEAR GROUND SAFETIES INCLUDING WHEEL CHOCKS ARE IN POSITION.
BEFORE APPLYING OR RELIEVING HYDRAULIC SYSTEM PRESSURE, MAKE CERTAIN THAT THE TRAVEL RANGES OF THE CONTROL SURFACES ARE CLEAR.
BEFORE PRESSURIZING HYDRAULIC SYSTEMS, CHECK THAT ALL CONTROLS ARE SET TO CORRESPOND WITH THE ACTUAL POSITION OF THE SERVICES THEY OPERATE.
BEFORE POWER IS SUPPLIED TO THE AIRCRAFT MAKE CERTAIN THAT ELECTRICAL CIRCUITS UPON WHICH WORK IS IN PROGRESS ARE ISOLATED.
BEFORE PRESSURIZING HYDRAULIC SYSTEMS, MAKE CERTAIN THAT HYDRAULIC SYSTEM UNDER MAINTENANCE HAS BEEN ISOLATED.

1. Equipment and Materials

	ITEM	DESIGNATION
	A.	Safety Barriers
	B. 98A32101506000	Removal/Installation Equipment - Main Landing Gear Doors
	C. 98A32101507000	Safety Strap - MLG
	D. 98A32301018000	Pin - Rigging, Main Gear Selector Control
	E. 98A32101505000	Pin - Rigging, Main Gear Door Selector Control
	F. 98A32103500004	Safety Net
	G.	Blanking Plugs
	H.	Access Platform (2.60 m) (8 ft. 7 in.)
	J.	Warning Notices
	K.	Hydraulic Fluid Container
	L. Material No. 04-004	Common Greases (Ref. 20-31-00)
R	M. Material No. 04-022	Common Greases (Ref. 20-31-00)
R	N. Material No. 11-002	Cleaning Agents (Ref. 20-31-00)
R	P.	Minilift
R	Q.	Hand Pump
	Referenced Procedures	
	- 12-12-29, P. Block 1	Hydraulics
	- 29-10-00, P. Block 301	Main Hydraulic Power - Pressurization/ Depressurization
	- 29-14-00, P. Block 301	Hydraulic Reservoir Pressurizing System
	- 32-12-11, P. Block 301	Main Gear Main Door - (Ground Door(s) Opening)
	- 32-12-11, P. Block 501	Main Gear Main Door
	- 32-31-00, P. Block 501	Normal Extension and Retraction

2. Procedure

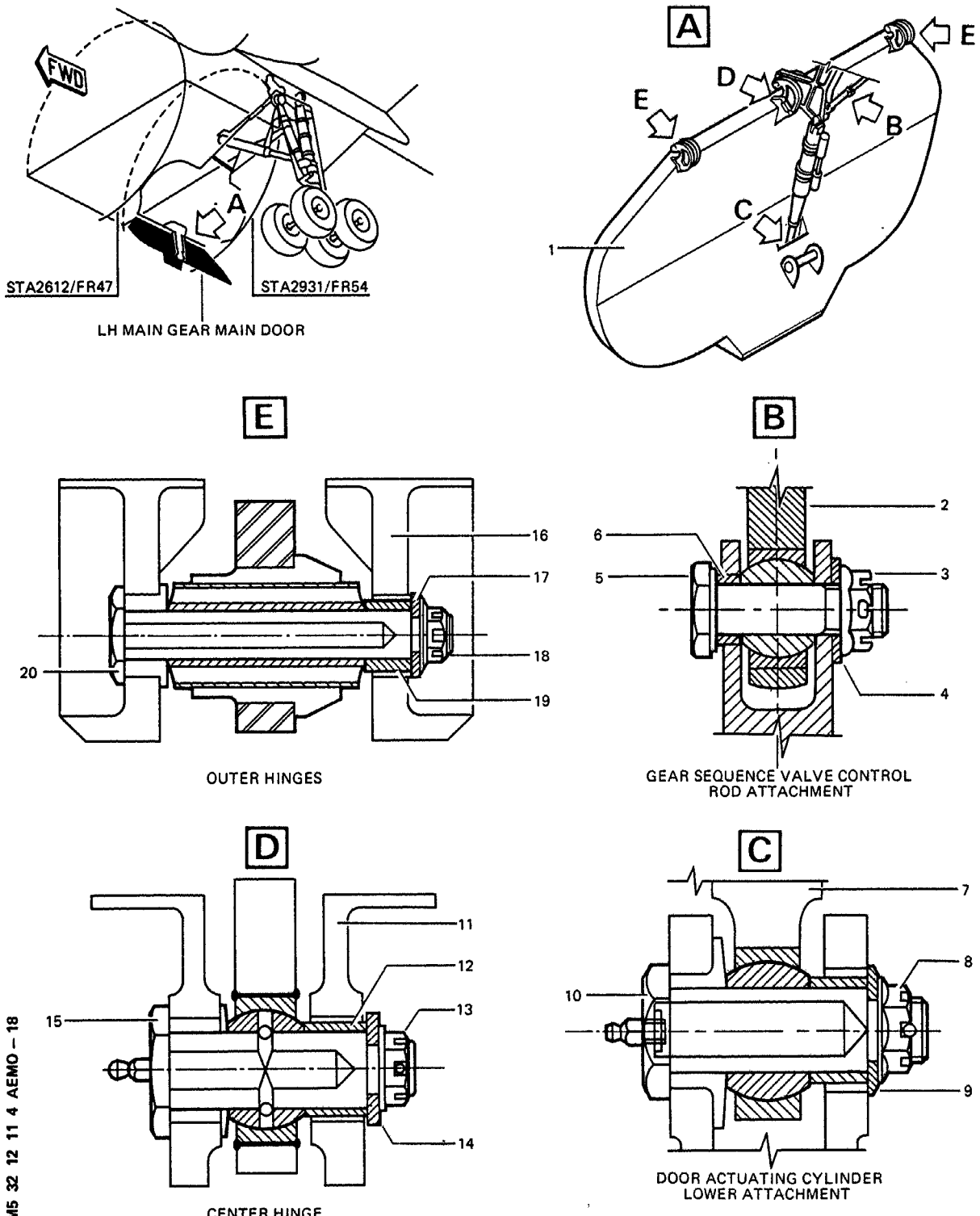
A. Job Set-Up
(1)On panel 4VU
- make certain that landing gear control lever is in **DOWN** position and prohibit its operation by displaying a warning notice.

(2)Between the First Officer's and Third Occupant's seats
- make certain that landing gear Free Fall extension control handle is

in Normal position and prohibit its operation by displaying a warning notice.
(3)Position access platform.
(4)Position safety barriers prohibiting access to gear door travel ranges.
WARNING : MAKE CERTAIN THAT THE DOOR TRAVEL RANGES ARE CLEAR.
(5)Open the main gear doors (Ref. 32-12-11, P. Block 301).
WARNING : WHEN DOORS ARE OPEN, MAKE CERTAIN THAT SAFETY COLLARS ARE POSITIONED ON DOOR ACTUATING CYLINDERS.
(6)Depressurize Green hydraulic reservoir (Ref. 29-14-00, P. Block 301) and prohibit its pressurization by displaying a warning notice :
- on panel 429VU to prohibit APU starting
- on hydraulic reservoir pressurization connector.
(7)Depressurize Green hydraulic system (Ref. 29-10-00, P. Block 301) and prohibit its pressurization by displaying a warning notice :
- on Green hydraulic system ground connectors
- on panel 427VU to prohibit operation of Green electric pumps (ELEC PUMPS pushbutton switch).
(8)Position hydraulic fluid container.
(9)Install main gear door removal/installation equipment.
(a)Install safety net in hydraulics compartment.
(b)Attach cross bar assembly to landing gear well roof.
(c)Install removal/installation beam assembly on door.
(d)Install minilift on cross bar assembly and hook-up with beam assembly.
(e)Take-up slack on minilift cable.
(f)Install safety strap.
NOTE : Door weight is 75 kg (165 lbs) approx.

B. Removal (Ref. Fig. 401)
R (1)Disconnect bonding jumpers from main door (1).
(2)Disconnect landing gear sequence valve control rod (2).
(a)Remove cotter pin and nut (3). Retain washer (4) and remove pin (5) and bush (6).
(b)Disengage rod (2).
(3)Disconnect actuating cylinder (7) from door (1).
(a)Remove access panel at actuating cylinder (7) lower attachment fitting.
(b)Remove cotter pin and nut (8). Retain washer (9) and remove pin (10).
(c)Disengage door actuating cylinder.
(4)Disconnect door from its outer hinges (16).
(a)Remove cotter pin and nuts (18). Retain washers (17).
(b)Disengage pins (20) and spacers (19).
(5)Disconnect door from its center hinge (11).
(a)Remove cotter pin and nut (13). Retain washer (14).
(b)Support weight of door (1).
(c)Disengage pin (15) and spacer (12).
(6)Remove door.

C. Preparation of Replacement Component
(1)Depreserve the replacement door by removing the external protective coverings.
(2)Remove from door which has been taken down, the removal/installation device lifting beam and install it on the replacement door.

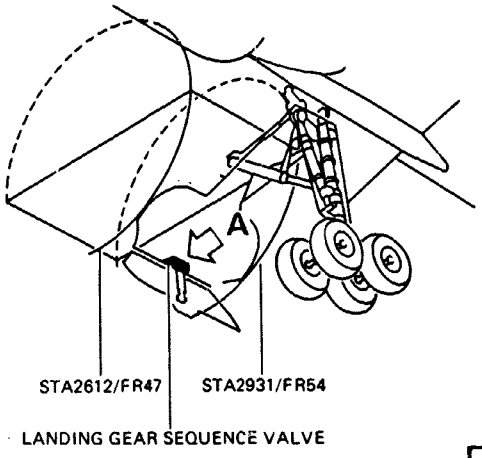


Main Gear Main Door
Figure 401

(3)Clean all parts which are to be installed with Material No. 11-002 and dry with filtered compressed air.
(4)Hook-up minilift with beam assembly on door.

D. Installation (Ref. Fig. 401, 402)

R (1)Smear bearing surfaces of hinge pins with Material No. 04-004 or
R Material No. 04-022.
R NOTE : Do not mix Material No. 04-004 with Material No. 04-022.
R You can use Material No. 04-022 as an alternative to
R Material No. 04-004. Clean and degrease the parts before you use
R Material No. 04-022.
(2)Lift door with minilift.
(3)Position door (1).
(4)Connect door (1) to its outer hinges (16).
On each hinge :
(a)Install pin (20), spacer (19), washer (17).
(b)Install nut (18) and safety with cotter pin.
(5)Connect door (1) to the center hinge (11).
(a)Install pin (15), spacer (12), washer (14).
(b)Install nut (13) and safety with cotter pin.
(6)Remove door removal/installation equipment.
(a)Remove cross bar assembly and minilift.
(b)Remove beam assembly from door.
(7)Connect actuating cylinder (7) to door (1).
R (a)Smear pin (10) with Material No. 04-004 or Material No. 04-022.
R NOTE : Do not mix Material No. 04-004 with Material No. 04-022.
R You can use Material No. 04-022 as an alternative to
R Material No. 04-004. Clean and degrease the parts before you use
R Material No. 04-022.
(b)Install pin (10), washer (9) and nut (8). Tighten nut (8) and safety with cotter pin.
(c)Install access panel at actuating cylinder (7) attachment fitting.
(8)Install safety collar on door actuating cylinder (7).
(9)Disconnect aircraft hydraulic lines from door actuating cylinder (7).
(10)Install blanking plugs on lines.
(11)Connect hand pump lines to actuating cylinder.
(12)Pressurize door actuating cylinder until sliding rod fully extends.
(13)Connect landing gear sequence valve (21) control rod (2).
(a)Install rigging pin 98A32301018000 in lever (22) and sequence valve (21).
(b)Install rigging pin 98A32101505000 in flange plates (30) and lever (26).
If pin cannot be installed :
- Loosen nuts (23) and disengage lockwashers (24).
- Adjust length of rod (25) until rigging pin can be inserted.
- Engage lockwashers (24). Tighten and wirelock nuts (23).
(c)Connect rod (2) to door fitting (29).
1 If necessary, adjust length of rod (2)
- Loosen nuts (27) and release lockwashers (28).
- Adjust rod (2) until pin (5) can be inserted.
- Engage lockwashers - Tighten nuts (27) and wirelock.



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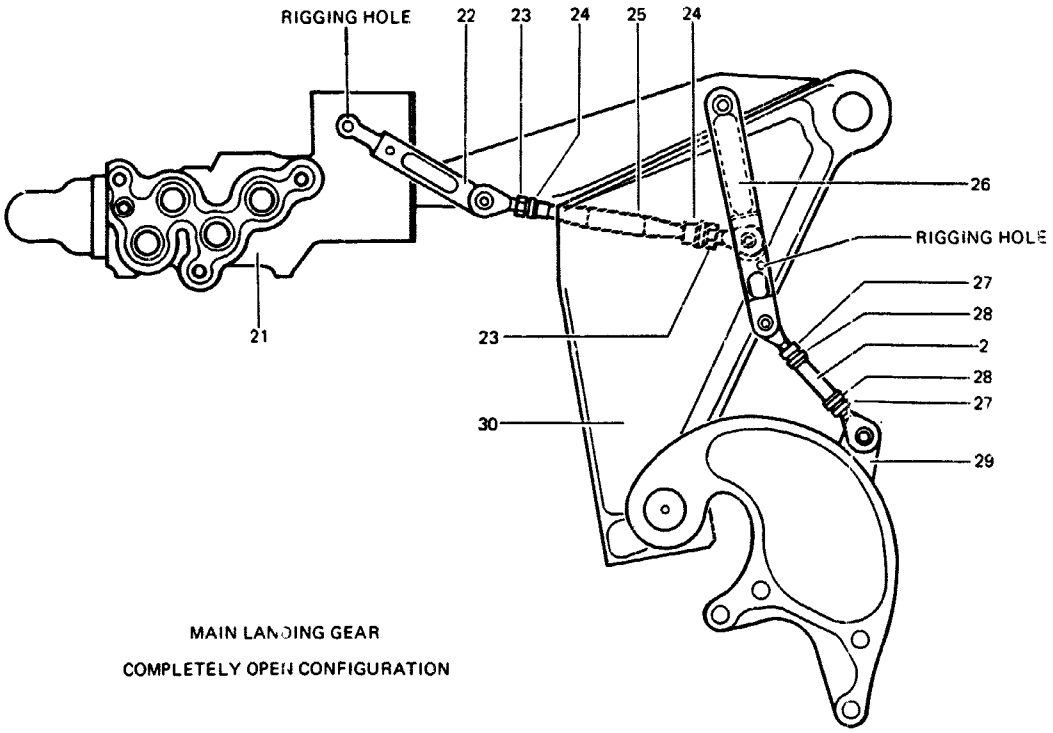


MAIN LANDING GEAR
COMPLETELY OPEN CONFIGURATION

BM5 32 12 11 4 ACMO

Main Gear Sequence Valve - Adjustment
Figure 402

2 Install pin (5), bush (6) and washer (4).
3 Safety nut (3) with cotter pin.
(d) Remove rigging pins.
(14) Depressurize door actuating cylinder.
(15) Disconnect hand pump hydraulic lines from door actuating cylinder.
(16) Remove blanking plugs and connect door actuating cylinder hydraulic lines.
(17) Connect bonding jumpers on door.
(18) Lubricate door hinges and door actuating cylinder hinge points with
R Material No. 04-004 or Material No. 04-022.
R NOTE : Do not mix Material No. 04-004 with Material No. 04-022.
R You can use Material No. 04-022 as an alternative to
R Material No. 04-004. Clean and degrease the parts before you use
R Material No. 04-022.
(19) Remove safety strap assy 98A32101507000.

E. Adjustment/Test
(1) Carry out door adjustment (Ref. 32-12-11, P. Block 501).
NOTE : Safety net in hydraulics compartment shall be removed after door adjustment.
(2) Carry out a gear extension and retraction functional test (Ref. 32-31-00, P. Block 501).

F. Close-Up
(1) Remove hydraulic fluid container.
(2) Make certain that working area is clean and clear of tools and miscellaneous items of equipment.
(3) Pressurize Green hydraulic reservoir (Ref. 29-14-00, P. Block 301).
WARNING : MAKE CERTAIN THAT THE DOOR TRAVEL RANGES ARE CLEAR.
(4) Close main landing gear doors (Ref. 32-12-11, P. Block 301).
(5) Replenish hydraulic reservoirs if necessary (Ref. 12-12-29, P. Block 1).
(6) Remove warning notice.
(7) Close access doors, remove access platform and protective barriers.
(8) Remove all ground handling and maintenance equipment, standard and special tools, together with ground power and replenishing equipment, all access equipment and miscellaneous items.

WARNING : CHECK THAT THE LANDING GEAR GROUND SAFETIES INCLUDING WHEEL CHOCKS ARE IN POSITION.
BEFORE APPLYING OR RELIEVING HYDRAULIC SYSTEM PRESSURE, MAKE CERTAIN THAT THE TRAVEL RANGES OF THE CONTROL SURFACES ARE CLEAR.
BEFORE PRESSURIZING HYDRAULIC SYSTEMS, CHECK THAT ALL CONTROLS ARE SET TO CORRESPOND WITH THE ACTUAL POSITION OF THE SERVICES THEY OPERATE.
BEFORE POWER IS SUPPLIED TO THE AIRCRAFT MAKE CERTAIN THAT ELECTRICAL CIRCUTS UPON WHICH WORK IS IN PROGRESS ARE ISOLATED.
BEFORE PRESSURIZING HYDRAULIC SYSTEM, MAKE CERTAIN THAT HYDRAULIC SYSTEM UNDER MAINTENANCE HAS BEEN ISOLATED.

1. Adjustment

A. Reason for the Job
(1)Adjustment after replacement of main door or after replacement of door uplock assembly.

B. Equipment and Materials

	ITEM	DESIGNATION
	(1)	Cart-Ground Power Supply and Preliminary Testing 150 l/min. (39.6 US GPM Hydraulic
R	(2)98A32101500000	Safety Collar - Main Gear Door Actuating Cylinder
	(3)	Access Platform 2.60 m (8 ft. 7 in.)
	(4)	Blanking Plugs/Caps
	(5)	Safety Barriers
	(6)	Circuit Breaker Safety Clips
	(7)	Hydraulic Fluid Container
	(8)	Warning Notices
	(9)98A32101507000	Safety Strap - Main Landing Gear Door
	(10)Not applicable	
	11)98A32101510000	Safety Pin - MLG Door Locking
	Referenced Procedures	
	- 07-11-00, P. Block 1	Jacking for Aircraft Maintenance Operations
	- 12-12-29, P. Block 1	Hydraulic Reservoir Replenishing
	- 24-41-00, P. Block 301	AC External Power Control
	- 29-10-00, P. Block 301	Main Hydraulic Power (Pressurization/ Depressurization)
	- 29-14-00, P. Block 301	Hydraulic Reservoir Pressurizing System
	- 32-12-11, P. Block 301	Main Gear Main Door-(Ground Door(s) Opening)
	- 32-31-00, P. Block 501	Normal Extension and Retraction
	- 32-31-35, P. Block 401	Main Gear Door Actuating Cylinder

C. Job Set-Up
NOTE : Aircraft configuration : gears extended, main gear doors open. If doors are closed, open them (Ref. 32-12-11, P. Block 301).

(1)On panel 4VU
- make certain that landing gear control lever is in **DOWN** position and prohibit its operation by displaying a warning notice.

(2)Between the First Officer's and Third Occupant's seats
- make certain that landing gear Free Fall extension control handle is in Normal position and prohibit its operation by displaying a warning notice.

(3)Make certain that safety collars are installed on main door actuating cylinders.

(4)Make certain that safety barriers prohibiting access to the door and gear travel ranges are in position.

(5)Position access platform.

(6)Depressurize Green hydraulic system (Ref. 29-10-00, P. Block 310) and prohibit its pressurization by displaying a warning notice :
- on Green hydraulic system ground connectors
- on panel 427VU to prohibit operation of Green electric pumps (**ELEC PUMPS** pushbutton switch).

(7)Depressurize Green hydraulic reservoir (Ref. 29-14-00, P. Block 301) and prohibit its pressurization by displaying a warning notice :
- on panel 429VU to prohibit APU starting
- on reservoir pressurization connector.

(8)Jack up aircraft until wheels are clear of ground (Ref. 07-11-00, P. Block 1).

(9)Connect hydraulic ground power cart to Green hydraulic system ground connectors (Ref. 29-10-00, P. Block 301).

(10)Position hydraulic fluid container.

(11)Install safety net in hydraulics compartment.

D. Adjustment

(Ref. Fig. 501)

(Ref. Fig. 502)

(1)Disconnect aircraft hydraulic lines from the main door actuating cylinder to be adjusted.
Cap open line ends.

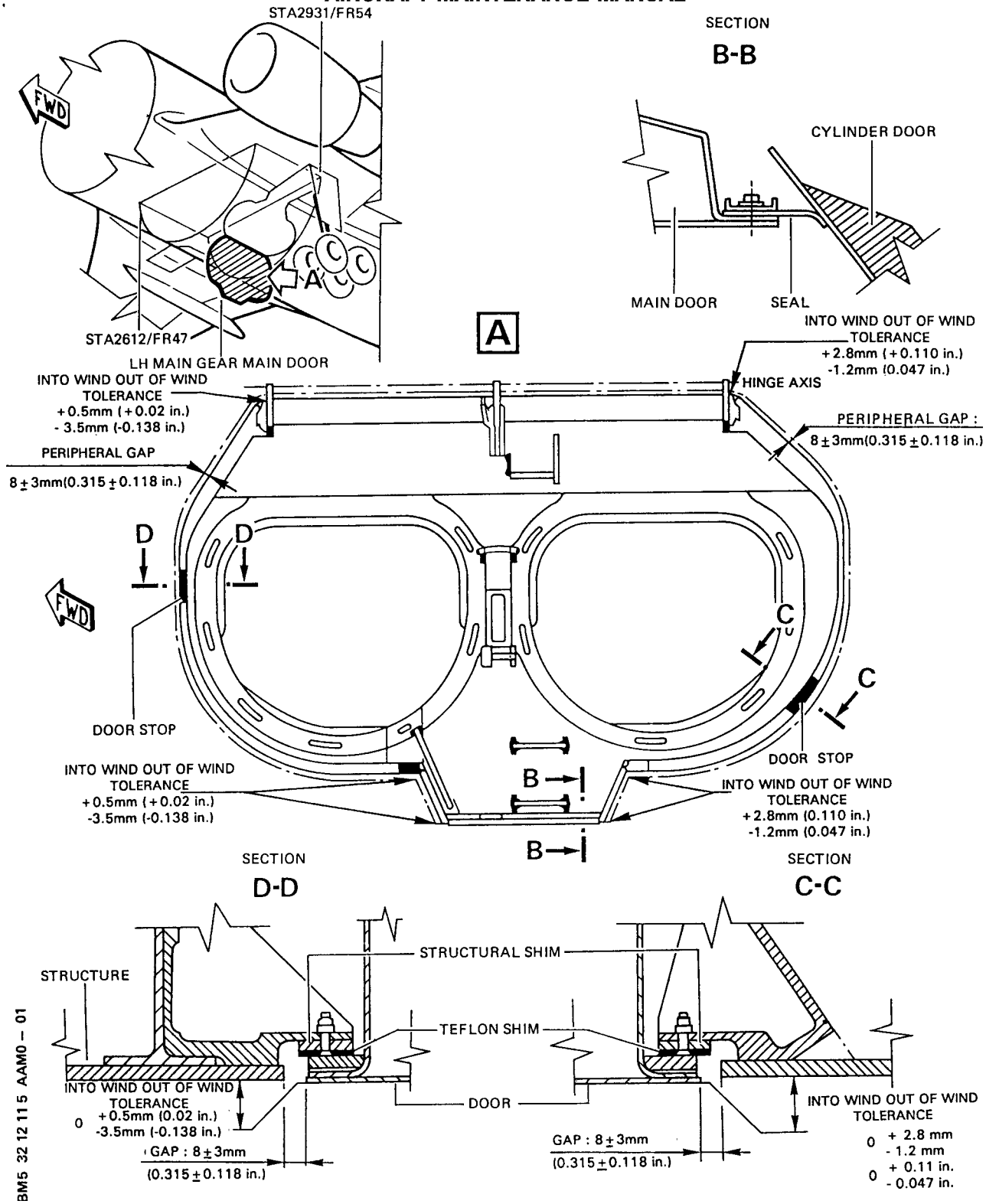
(2)Remove stops from their structural mountings.
NOTE : The stops consist of a stack of shims.

(3)Connect the hydraulic test cart hand pump hydraulic lines to the actuating cylinder.

(4)Remove safety collar from door actuating cylinder.
WARNING : MAKE CERTAIN THAT THE DOOR TRAVEL RANGE IS CLEAR.
NOTE : Before closing door :
On panels 4VU and 76VU,
- make certain that amber **DOOR** legend corresponding to the door is on.

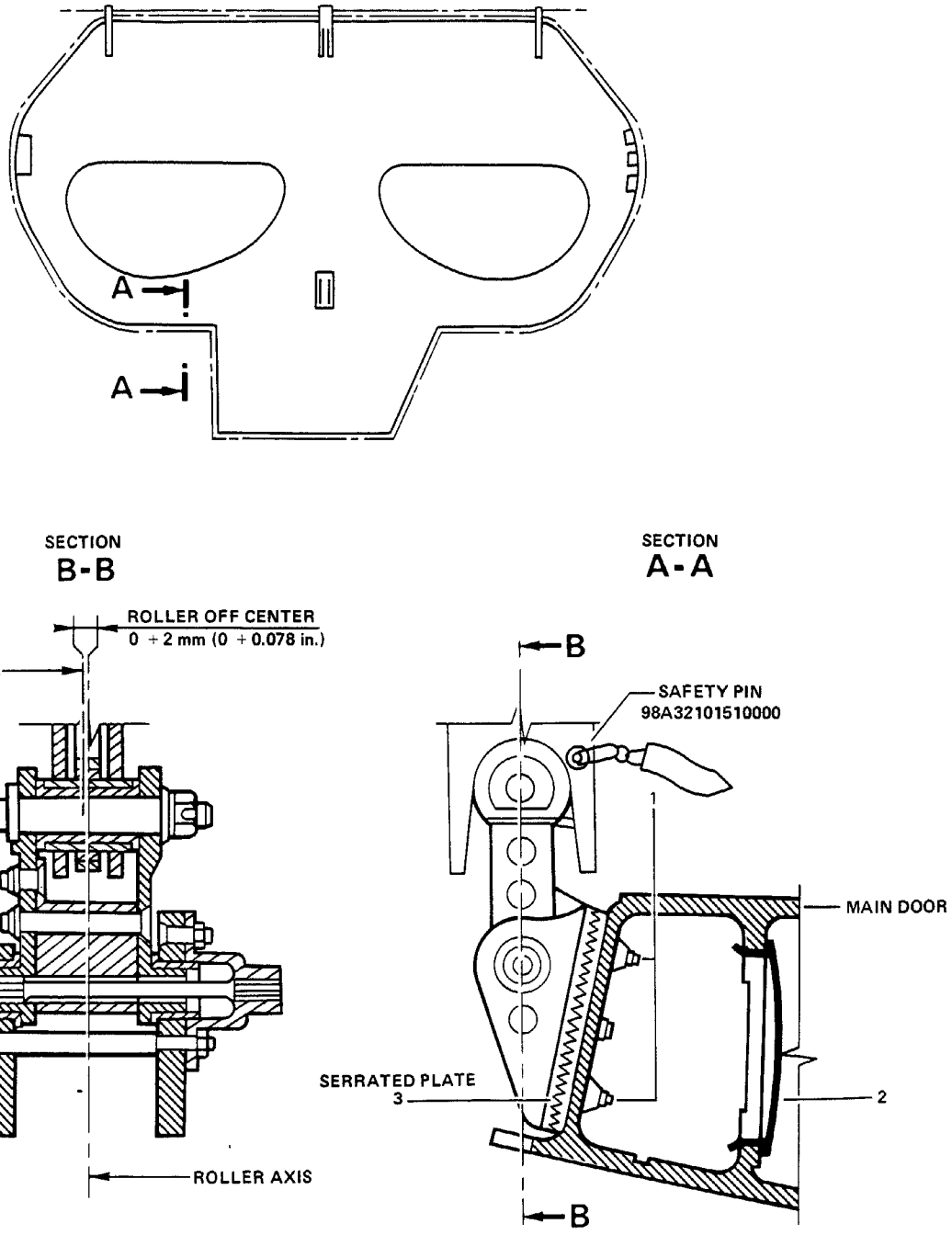
(5)Slowly close the door by means of the hand pump.

(6)Make certain that door locks correctly.
Install safety pin 98A32101510000 on door uplock assembly to maintain doors in closed position.
WARNING : EACH TIME DOOR IS CLOSED :
- MAKE CERTAIN THAT DOOR UPLOCKS CORRECTLY.



Main Gear Main Door Adjustment
Figure 501

R



Main Gear Main Door Uplock Roller Adjustment
Figure 502

ON PANELS 4VU AND 76VU,
- MAKE CERTAIN THAT AMBER DOOR LEGEND CORRESPONDING TO THE DOOR GOES OFF.

WARNING : DO NOT WALK ON CLOSED LANDING GEAR DOOR THROUGHOUT DURATION OF MAINTENANCE OPERATIONS.
- DISPLAY WARNING NOTICE ON GROUND DOOR OPENING CONTROL HANDLES PROHIBITING OPERATION OF HANDLES TO PREVENT UN-CONTROLLED OPENING OF GEAR DOOR.
- DO NOT TOUCH GEAR DOOR FREE FALL RELEASE LINKAGE INSIDE LANDING GEAR WELL.

(7)Install safety strap on landing gear door to be adjusted.
(8)Depressurize door actuating cylinder.
R (9)Check that peripheral gap between door and structure is 8 ± 3 mm
R (0.315 ± 0.118 in.) (Ref. Fig. 501).
R If gap is out of tolerance, note disparity.
R (10)Check door into-wind, out-of-wind clearance.
R - FWD door 0 + 0.5, - 3.5 mm (0 + 0.02, - 0.138 in.).
R - AFT door 0 + 2.8, - 1.2 mm (0 + 0.11, - 0.047 in.).
R If clearance is out of tolerance, note disparity.
(11)Check that uplock roller is centered laterally in the door uplock assembly hook.
(12)Disconnect safety strap and remove safety pin 98A32101510000 from its housing in door uplock assembly.
WARNING : MAKE CERTAIN THAT THE DOOR TRAVEL RANGE IS CLEAR.
NOTE : Do not allow door to fall open abruptly. Slowly open door by controlling flow of return fluid to hydraulic ground power cart (restriction fluid return).
(13)Place door ground opening control handle in OPEN position.
(14)Slowly open door by restricting flow of return fluid to hydraulic ground power cart.
(15)If door into-wind, out-of-wind clearances are out of tolerance, adjust door by means of serrated plate. If necessary adjust the centering of the roller laterally (Ref. Fig.)
(a)Remove cap (2)
(b)Loosen nuts (1).
(c)Relocate serrated plate (3).
(d)Tighten nuts (1).
(e)Install cap (2).
(f)Place door ground opening control handle in CLOSED position.
(16)Slowly close the door by means of hand pump.
(17)Not applicable.
(Ref. Fig. 502)
(18)Make certain that door uplocks correctly and install safety pin 98A32101510000 in its housing in door uplock assembly.
(19)Install safety strap on landing gear door to be adjusted.
(20)Depressurize door actuating cylinder.
(21)Not applicable.
(22)Not applicable.
(23)Not applicable.
(24)Make certain that peripheral gap, and door into-wind, out-of-wind clearances are correct.

(25)Note thickness of shims required to bring door, when in closed position, into contact with forward structural stop. Rear structural stops may be adjusted to achieve a clearance of 0.8 mm (0.03 in.) maximum.
(26)Remove safety strap 98A32101507000 and safety pin 98A32101510000.
WARNING : MAKE CERTAIN THAT DOOR TRAVEL RANGES ARE CLEAR.
NOTE : Do not allow door to fall open abruptly.
Slowly open door by controlling flow of return fluid to hydraulic ground power cart (restricting fluid return).
(27)Place door ground opening control handle in OPENED position.
(28)Slowly open door, by restricting flow of return fluid to hydraulic ground power cart, until door actuating cylinder reaches stop position. Install safety collar on door actuating cylinder.
(29)Complete adjustment as required.
(30)Depressurize door actuating cylinder.
(31)Install stops on structural mountings, with thickness of shims noted.
(32)Disconnect hand pump lines from the door actuating cylinder.
(33)Remove blanking plugs and connect door actuating cylinder hydraulic lines.
(34)Remove safety net in hydraulics compartment.
(35)Remove hydraulic fluid container.
(36)Pressurize Green hydraulic reservoir (Ref. 29-14-00, P. Block 301).
WARNING : MAKE CERTAIN THAT THE DOOR TRAVEL RANGES ARE CLEAR.
(37)Close landing gear doors (Ref. 32-12-11, P. Block 301).
(38)Make certain that hydraulic ground power cart delivery and pressure are adjusted to minimum settings.
(39)Remove landing gear safety pins.

(40)Energize the aircraft electrical network (Ref. 24-41-00, P. Block 301) and make certain that electronics racks ventilation is correct.
WARNING : OPEN, SAFETY AND TAG THE FOLLOWING CIRCUIT BREAKER :

PANEL	SERVICE	IDENT.	LOCATION
133VU	HYDRAULIC/ELEC/PUMPS/WARN	4GE	331/V60

(41)On panel 4VU
- place landing gear control lever in UP position.
(42)Regulate hydraulic ground power cart delivery pressure so as to retract the gears and close the doors as slowly as possible.
(43)Place landing gear control lever in Neutral position.
(44)Depressurize Green hydraulic system (Ref. 29-10-00, P. Block 301).
(45)Shut down electrical ground power unit (Ref. 24-41-00, P. Block 301).
(46)Open safety and tag the following circuit breaker :

PANEL	SERVICE	IDENT.	LOCATION
22VU	LDG/GEAR/EXTEND/CTL	1GA	201/J28

(47)Make certain that seal between cylinder door and main door is correctly positioned.
(48)Remove safety clips and tags, and close circuit breakers 1GA and 4GE.
WARNING : MAKE CERTAIN THAT THE DOOR TRAVEL RANGES ARE CLEAR.

(49)Energize the aircraft electrical network (Ref. 24-41-00, P. Block 301). Make certain that electronics racks ventilation is correct.
(50)Pressurize the Green hydraulic system (Ref. 29-10-00, P. Block 301).
(51)On panel 4VU
- place landing gear control lever in **DOWN** position.
(52)Open main gear door concerned (Ref. 32-12-11, P. Block 301).
WARNING : WHEN DOOR IS OPEN MAKE CERTAIN THAT SAFETY COLLAR IS POSITIONED ON DOOR ACTUATING CYLINDER.
(53)Depressurize Green hydraulic system (Ref. 29-11-00, P. Block 301).
(54)De-energize the aircraft electrical network (Ref. 24-41-00, P. Block 301).

E. Tests
(1)Carry out a gear extension and retraction functional test (Ref. 32-31-00, P. Block 501).

F. Close-Up
(1)Make certain that working area is clean and clear of tools and miscellaneous items of equipment.
WARNING : MAKE CERTAIN AREA UNDER THE AIRCRAFT IS CLEAR.
(2)Lower the aircraft onto its wheels (Ref. 07-11-00, P. Block 1).
WARNING : MAKE CERTAIN THAT DOOR TRAVEL RANGES ARE CLEAR.
(3)Close landing gear doors (Ref. 32-12-11, P. Block 301).
(4)Disconnect the hydraulic ground power cart (Ref. 29-11-00, P. Block 301).
(5)Replenish hydraulic reservoirs if necessary (Ref. 12-12-29, P. Block 1).
(6)Remove warning notices.
(7)Close access doors, remove access platforms and safety barriers.
(8)Remove all ground handling and maintenance equipment, standard and special tools, together with ground power and replenishing equipment, all access equipment and miscellaneous items.

MAIN GEAR MAIN DOOR - DEACTIVATION/REACTIVATION

REFERENCE : CONFIGURATION DEVIATION LIST (CDL) SECTION 52.13.4

1. Main Gear Main Door Deactivation

A. Equipment and Materials

ITEM	DESIGNATION
(1)98A32301018000	Pin-Rigging, Main Gear Selector Control
(2)	Blanking Plugs (MS 21913)
Referenced Procedures	
- 32-12-11, P. Block 401	Main Gear Main Door
- 32-31-35, P. Block 401	Main Gear Door Actuating Cylinder
- 32-31-37, P. Block 401	Main Gear Sequence Valve

B. Procedure

(1)Remove main gear main door (Ref. 32-12-11, P. Block 401).
(2)Remove rod connecting door to sequence valve (Ref. 32-31-37, P. Block 401).
(3)Rig sequence valve in "O" position, safety rigging pin on valve input lever using lockwire. Remove streamer from rigging pin 98A32301018000.
(4)Remove door actuating cylinder (Ref. 32-31-35, P. Block 401).
(5)Blank hydraulic lines using blanking plugs MS21913.
(6)Secure hydraulic lines to prevent movement.

2. Main Gear Main Door Reactivation

A. Equipment and Materials

ITEM	DESIGNATION
Referenced Procedures	
- 32-12-11, P. Block 401	Main Gear Main Door
- 32-31-35, P. Block 401	Main Gear Door Actuating Cylinder
- 32-31-37, P. Block 401	Main Gear Sequence Valve

B. Procedure

(1)Install main gear main door (Ref. 32-12-11, P. Block 401).
(2)Install main gear door actuating cylinder (Ref. 32-31-35, P. Block 401).
(3)Install rod connecting door to sequence valve (Ref. 32-31-37, P. Block 401).
CAUTION : DO NOT FORGET TO REMOVE RIGGING PIN 98A32301018000.

WARNING : CHECK THAT THE LANDING GEAR GROUND SAFETIES INCLUDING WHEEL CHOCKS ARE IN POSITION.

BEFORE APPLYING OR RELIEVING HYDRAULIC SYSTEM PRESSURE, MAKE CERTAIN THAT THE TRAVEL RANGES OF THE CONTROL SURFACES ARE CLEAR.

BEFORE PRESSURIZING HYDRAULIC SYSTEMS, CHECK THAT ALL CONTROLS ARE SET TO CORRESPOND WITH THE ACTUAL POSITION OF THE SERVICES THEY OPERATE.

BEFORE POWER IS SUPPLIED TO THE AIRCRAFT MAKE CERTAIN THAT ELECTRICAL CIRCUITS UPON WHICH WORK IS IN PROGRESS ARE ISOLATED.

BEFORE PRESSURIZING HYDRAULIC SYSTEMS MAKE CERTAIN THAT HYDRAULIC SYSTEM UNDER MAINTENANCE HAS BEEN ISOLATED.

1. Equipment and Materials

ITEM	DESIGNATION
A.	Cart-Ground Power Supply and Preliminary Testing 150 l/min. (39.6 US. gal/mn) Hydraulic
B.	Access Platform 2.70 m (9 ft.)
C.	Safety Barriers
D.	Warning Notice
E.	Circuit Breaker Safety Clips
F.	Lockwire, Corrosion Resistant Steel, Dia. 0.8 mm (0.03 in.)
G. Material No. 11-002	Cleaning Agents (Ref. 20-31-00)
H. Material No. 04-004	Common Greases (Ref. 20-31-00)
R J. Material No. 04-022	Common Greases (Ref. 20-31-00)
Referenced Procedures	
- 07-11-00, P. Block 1	Jacking for Aircraft Maintenance Operations
- 24-41-00, P. Block 301	AC External Power Control
- 29-10-00, P. Block 301	Main Hydraulic Power - Pressurization/ Depressurization
- 29-14-00, P. Block 301	Hydraulic Reservoir Pressurizing System
- 32-12-11, P. Block 301	Main Gear Main Door - (Ground Door(s) Opening)
- 32-31-00, P. Block 501	Normal Extension and Retraction

2. Procedure

A. Job Set-Up
(1)On panel 4VU
- make certain that landing gear control lever is in **DOWN** position and prohibit its operation by displaying a warning notice.
(2)Between First Officer's and Third Occupant's seats

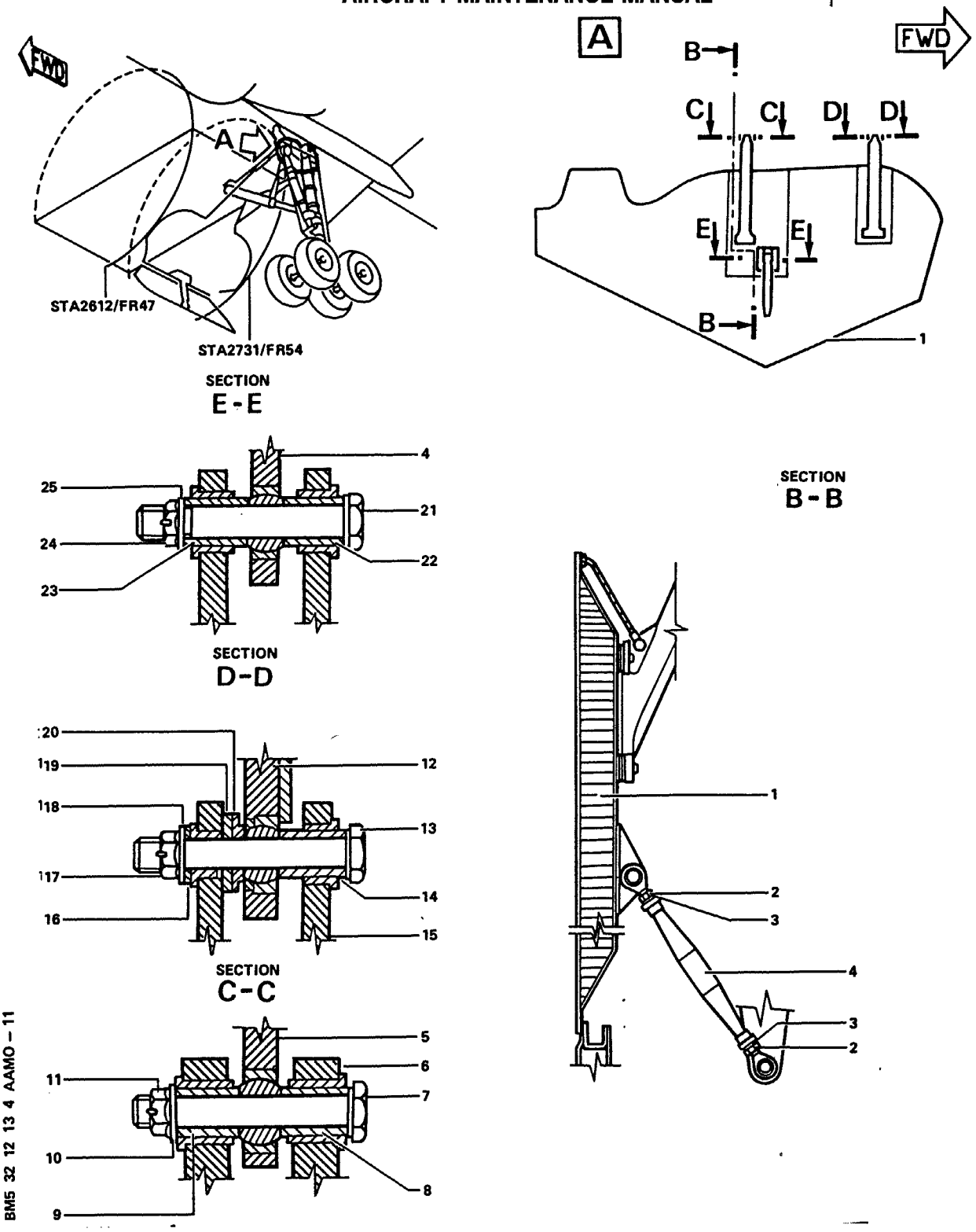
- make certain that landing gear Free Fall extension control handle is in Normal position.

(3)Position access platform.
(4)Position safety barriers prohibiting access to door travel ranges.
WARNING : MAKE CERTAIN THAT THE DOOR TRAVEL RANGES ARE CLEAR.
(5)Open the main gear main doors (Ref. 32-12-11, P. Block 301).
WARNING : WHEN DOORS ARE OPEN MAKE CERTAIN THAT SAFETY COLLARS ARE POSITIONED ON DOOR ACTUATING CYLINDERS.
(6)Depressurize Green hydraulic reservoir (Ref. 29-14-00, P. Block 301) and prohibit its pressurization by displaying a warning notice :
- on panel 429VU to prohibit APU starting
- on reservoir pressurization connectors.
(7)Depressurize Green hydraulic system (Ref. 29-10-00, P. Block 301) and prohibit its pressurization by displaying a warning notice :
- on Green hydraulic system ground connectors
- on panel 427VU, to prohibit operation of Green electric pumps (ELEC PUMPS pushbutton switch).
(8)Jack up aircraft until wheels are clear of ground.
(Ref. 07-11-00, P. Block 1).
(9)Connect hydraulic ground power cart to Green system ground connectors (Ref. 29-10-00, P. Block 301).

B. Removal
(Ref. Fig. 401)
(1)Disconnect bonding jumpers.
(2)Remove rod (4) from its attachment fitting on secondary door.
(a)Remove cotter pin, remove nut (24), bolt (21), washer (25) and spacer (23) and retain them for reinstallation.
(b)Disengage rod (4).
WARNING : SUPPORT THE DOOR.
(3)Free door (1) at its forward attachment on structure.
(a)Remove cotter pin, remove nut (17), washers (16) and (18) and retain for installation
(b)Remove bolt (13) together with washer (19), spacer (14) and special washer (20) and retain for reinstallation.
(4)Free door (1) at its aft attachment on structure.
(a)Remove cotter pin, remove nut (11), washer (10) and retain for reinstallation.
(b)Remove bolt (7) together with spacers (8) and (9) and retain for reinstallation.
(5)Remove door (1).

C. Preparation of Replacement Component
(1)Clean all parts to be installed with Material No. 11-002 and dry them with filtered compressed air.
(2)Clean and inspect door zone and area in immediate vicinity of its attachments.

D. Installation



Main Landing Gear Secondary Door - Attachments
Figure 401

**ON A/C 001-003,

(Ref. Fig. 401, 402)

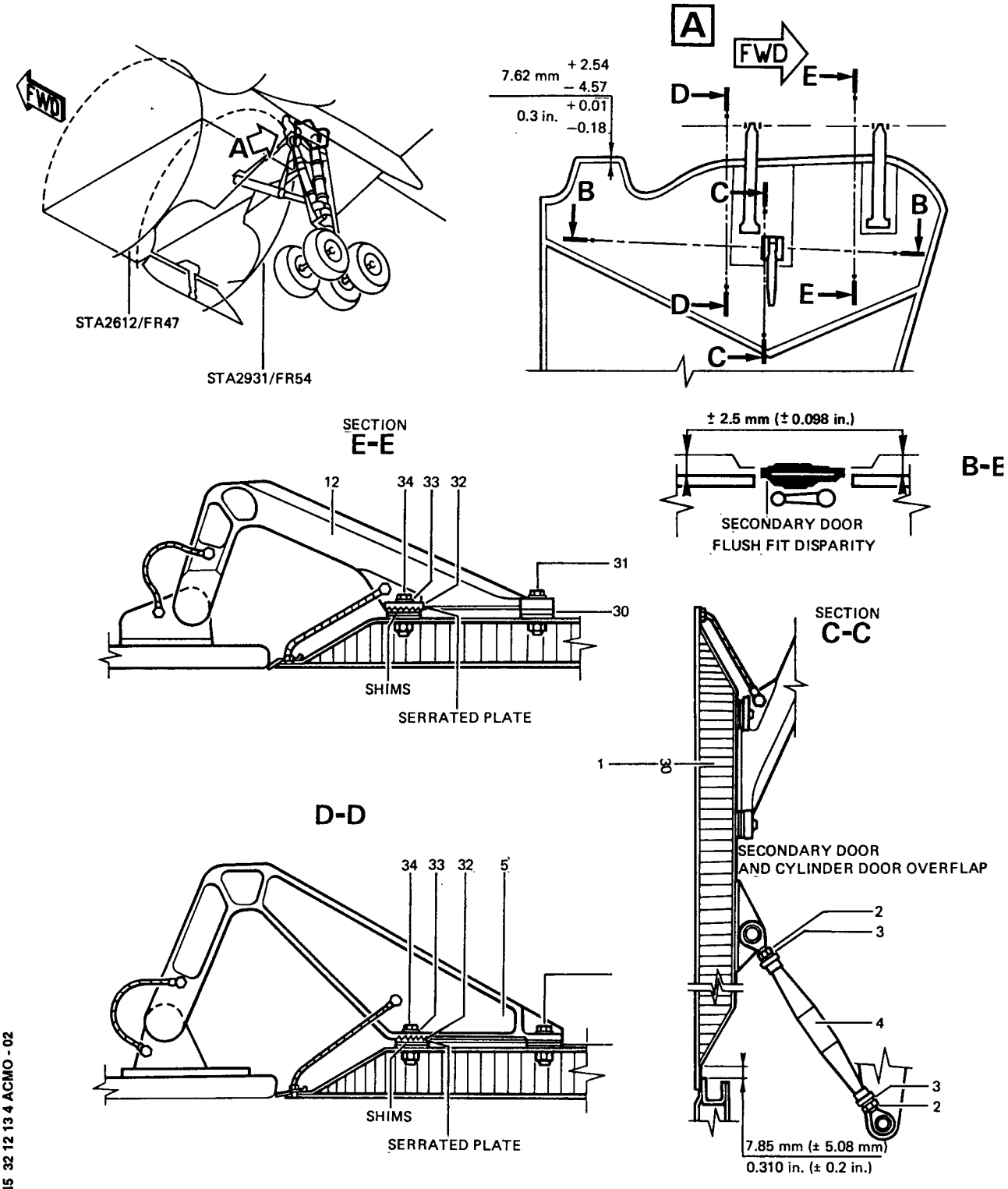
R **ON A/C 004-200,

(Ref. Fig. 401, 403)

**ON A/C ALL

R (1)Lightly coat attach bolts surfaces with Material No. 04-004 or
R Material No. 04-022.
R NOTE : Do not mix Material No. 04-004 with Material No. 04-022.
R You can use Material No. 04-022 as an alternative to
R Material No. 04-004. Clean and degrease the parts before you use
R Material No. 04-022.
(2)Install door fittings (5) and (12) in structural clevises and line up bores.
(3)Connect door to its forward attachment.
(a)Install bolt (13) with washer (19), spacer (14) and insert special washer (20).
(b)Install washers (16) and (18). Install and safety nut (17) with cotter pin.
(4)Connect secondary door (1) at its aft attachment.
(a)Install spacers (8) and (9).
(b)Install bolt (7), washer (10) and nut (11). Safety nut with cotter pin.
(5)Connect control rod (4) to its attachment fitting on secondary door (1).
(a)Install spacers (22) and (23).
(b)Engage rod (4).
(c)Install bolt (21) and washer (25). Install and safety nut (24) with cotter pin.
(d)Cut and remove lockwire, loosen nuts (2) and disengage lockwashers (3). Rotate the rod body (4) in order to increase the length by a few millimeters.
(6)Connect bonding straps.
WARNING : MAKE CERTAIN THAT DOOR TRAVEL RANGES ARE CLEAR.
(7)Close landing gear doors (Ref. 32-12-11, P. Block 301).
WARNING : MAKE CERTAIN THAT DOOR AND LANDING GEAR TRAVEL RANGES ARE CLEAR.
(8)Remove landing gear safety pins.
(9)Energize the aircraft electrical network (Ref. 24-41-00, P. Block 301).
(10)Make certain that electronics racks ventilation is correct.
(11)Make certain that hydraulic ground power cart pressure and delivery are adjusted to their minimum.
(12)Open, safety and tag the following circuit breaker :

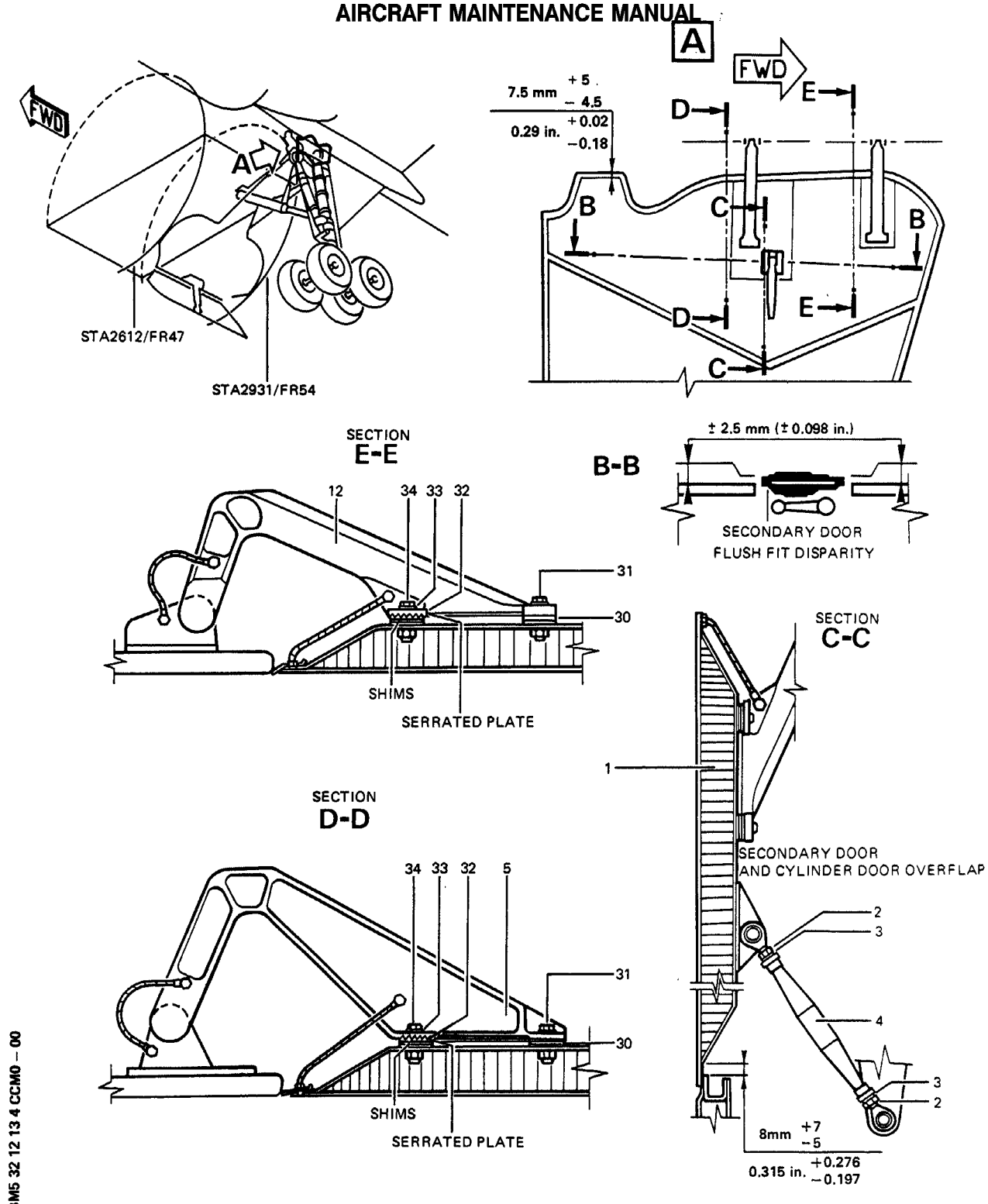
PANEL	SERVICE	IDENT.	LOCATION
133VU	HYDRAULIC/ELEC/PUMPS/WARN	4GE	331/V60



BM5 32 12 13 4 ACMO - 02

Main Gear Secondary Door - Adjustment
Figure 402

R



Main Gear Secondary Door - Adjustment
Figure 403

**ON A/C 001-003,

WARNING : ON PANEL 427VU MAKE CERTAIN THAT ELEC PUMPS PUSHBUTTON SWITCH IS IN OFF CONFIGURATION.

(13)On panel 4VU
- place landing gear control lever in UP position. Retract landing gear and close doors as slowly as possible.

(14)On panel 4VU
- place landing gear control lever in Neutral position and prohibit its operation by displaying a warning notice.

(15)Depressurize Green hydraulic system (Ref. 29-10-00, P. Block 301).

(16)De-energize the aircraft electrical network (Ref. 24-41-00, P. Block 301).

(17)Check that gap between the secondary door and the wing is 7.62 +2.54 -4.57 mm (0.3 +0.01 -0.180 in.).

(18)Note disparity if gap is out of tolerance.

(19)Check that wing-to-door flush fit is within ±2.5 mm (±0.098 in.).

(20)Note disparity if flush fit is out of tolerance.

(21)Note clearance between secondary door and cylinder door at overlap.

NOTE : After adjustment, doors should be in light contact with each other over at least 50% of the overlap.
Clearance at overlap should be 7.87 ±5.08 mm (0.310 ±0.2 in.).

WARNING : MAKE CERTAIN THAT DOOR AND LANDING GEAR TRAVEL RANGES ARE CLEAR.

R **ON A/C 004-200,

WARNING : ON PANEL 427VU MAKE CERTAIN THAT ELEC PUMPS PUSHBUTTON SWITCH IS IN OFF CONFIGURATION.

(13)On panel 4VU
- place landing gear control lever in UP position. Retract landing gear and close doors as slowly as possible.

(14)On panel 4VU
- place landing gear control lever in Neutral position and prohibit its operation by displaying a warning notice.

(15)Depressurize Green hydraulic system (Ref. 29-10-00, P. Block 301).

(16)De-energize the aircraft electrical network (Ref. 24-41-00, P. Block 301).

(17)Check that gap between the secondary door and the wing is 7.5 +5 -4.5 mm (0.29 +0.02 -0.18 in.).

(18)Note disparity if gap is out of tolerance.

(19)Check that wing-to-door flush fit is within ±2.5 mm (±0.098 in.).

(20)Note disparity if flush fit is out of tolerance.

(21)Note clearance between secondary door and cylinder door at overlap.

NOTE : After adjustment, doors should be in light contact with each other over at least 50% of the overlap.
Clearance at overlap should be 8 +7 -5 mm (0.315 +0.276 -0.197 in.).

WARNING : MAKE CERTAIN THAT DOOR AND LANDING GEAR TRAVEL RANGES ARE CLEAR.

**ON A/C ALL

(22)Energize the aircraft electrical network (Ref. 24-41-00, P. Block 301).
(23)Make certain that electronics racks ventilation is correct.
(24)Pressurize Green hydraulic system (Ref. 29-10-00, P. Block 301).
(25)On panel 4VU
- place landing gear control lever in DOWN position.
(26)With landing gear downlocked, install gear safety pins.
(27)Open main gear main door concerned (Ref. 32-12-11, P. Block 301).
WARNING : WHEN DOOR IS OPEN, MAKE CERTAIN THAT SAFETY COLLARS ARE POSITIONED ON DOOR ACTUATING CYLINDERS.
(28)Depressurize Green hydraulic system (Ref. 29-10-00, P. Block 301).
(29)De-energize the aircraft electrical network (Ref. 24-41-00, P. Block 301).
(30)If gap between secondary door and wing is out of tolerance :
(a)Slightly loosen screws (31) and (34) from supports (5) and (12) on secondary door.
(b)Adjust serrated plates (32) to position the door correctly.
(c)Tighten and wirelock screws (34) and (31).
(31)If flush fit between secondary door and wing is out of tolerance :
(a)Remove screws (34) and (31), washers (33) and retain for reinstallation.
(b)Remove mountings (5) and (12).
(c)Adjust the thickness of shims (30) according to the disparity noted.
(d)Install mountings (5) and (12), washers (33). Install screws (34) and (31) and wirelock.
(32)According to the gap noted between the secondary door and the cylinder door at overlap :
(a)Adjust length of rod (4) so that, in closed position, secondary door bears slightly on cylinder door over at least 50% of the overlap.
(b)Engage lockwashers (3), tighten nuts (2) and wirelock.
(33)On panel 4VU
- make certain that landing gear control lever is in DOWN position.
WARNING : MAKE CERTAIN THAT DOOR AND LANDING GEAR TRAVEL RANGES ARE CLEAR.
(34)Remove landing gear safety pins.
(35)Energize the aircraft electrical network (Ref. 24-41-00, P. Block 301).
(36)Make certain that electronics racks ventilation is correct.
(37)On panel 4VU
- place landing gear control lever in UP position.
WARNING : ON PANEL 427VU MAKE CERTAIN THAT ELEC PUMPS PUSHBUTTON SWITCH IS IN OFF CONFIGURATION.
(38)Connect hydraulic ground power cart and adjust delivery pressure so that gears retract and doors close as slowly as possible.
(39)On panel 4VU
- place landing gear control lever in Neutral position and prohibit its operation by displaying a warning notice.
(40)Shut down hydraulic ground power cart (Ref. 29-10-00, P. Block 301).

(41)De-energize the aircraft electrical network (Ref. 24-41-00, P. Block 301).
(42)Check that adjustments have been correctly carried out (gaps, secondary door/cylinder door flush fit and overlap).
WARNING : MAKE CERTAIN THAT DOOR AND LANDING GEAR TRAVEL RANGES ARE CLEAR.
(43)Remove safety clip and tag and close circuit breaker 4GE.
(44)Energize the aircraft electrical network (Ref. 24-41-00, P. Block 301).
(45)Make certain that electronics racks ventilation is correct.
(46)Pressurize Green hydraulic system (Ref. 29-10-00, P. Block 301).
(47)On panel 4VU
- place landing gear control lever in DOWN position.
(48)Landing gear downlocked, install landing gear safety pins.
(49)Open main gear main doors (Ref. 32-12-11, P. Block 301).
WARNING : WHEN DOORS ARE OPEN, MAKE CERTAIN THAT SAFETY COLLARS ARE POSITIONED ON DOOR ACTUATING CYLINDERS.
(50)Depressurize Green hydraulic system (Ref. 29-10-00, P. Block 301).
(51)De-energize the aircraft electrical network (Ref. 24-41-00, P. Block 301).
(52)Perform further door adjustments if necessary (adjustment of gaps, flush fit and overlap of secondary door on cylinder door).

E. Test
(1)Carry out a Normal landing gear extension and retraction functional test (Ref. 32-31-00, P. Block 501).

F. Close-Up
(1)Make certain that working area is clean and clear of tools and miscellaneous items of equipment.
WARNING : MAKE CERTAIN THAT THE AREA UNDER AIRCRAFT IS CLEAR.
(2)Lower the aircraft onto its wheels (Ref. 07-11-00, P. Block 1).
(3)Pressurize hydraulic reservoir (Ref. 29-14-00, P. Block 301).
WARNING : MAKE CERTAIN THAT DOOR TRAVEL RANGES ARE CLEAR.
(4)Close landing gear doors (Ref. 32-12-11, P. Block 301).
(5)Shut down and disconnect hydraulic ground power cart (Ref. 29-10-00, P. Block 301).
(6)Remove warning notices.
(7)Close access doors, remove access platform and safety barriers.
(8)Remove all ground handling and maintenance equipment standard and special tools together with ground power and replenishing equipment, all access equipment and miscellaneous items.

MAIN GEAR CYLINDER DOOR - REMOVAL/INSTALLATION

WARNING : CHECK THAT LANDING GEAR GROUND SAFETY DEVICES INCLUDING WHEEL CHOCKS ARE IN POSITION.

BEFORE APPLYING OR RELIEVING HYDRAULIC SYSTEM PRESSURE, MAKE CERTAIN THAT THE TRAVEL RANGES OF THE CONTROL SURFACES ARE CLEAR.

BEFORE PRESSURIZING HYDRAULIC SYSTEMS, CHECK THAT ALL CONTROLS ARE SET TO CORRESPOND WITH THE ACTUAL POSITION OF THE SERVICES THEY OPERATE.

BEFORE POWER IS SUPPLIED TO THE AIRCRAFT MAKE CERTAIN THAT ELECTRICAL CIRCUITS UPON WHICH WORK IS IN PROGRESS ARE ISOLATED.

BEFORE PRESSURIZING HYDRAULIC SYSTEMS MAKE CERTAIN THAT HYDRAULIC SYSTEM UNDER MAINTENANCE HAS BEEN ISOLATED.

1. Equipment and Materials

	ITEM	DESIGNATION
	A.	Cart-Ground Power Supply and Preliminary Testing 150 l/min. (39.6 US gal/mn) Hydraulic
	B. Material No. 11-002	Cleaning Agents (Ref. 20-31-00)
	C. Material No. 04-004	Common Greases (Ref. 20-31-00)
R	D. Material No. 04-022	Common Greases (Ref. 20-31-00)
R	E.	Access Platform 2.70 m (9 ft.)
R	F.	Safety Barriers
R	G.	Warning Notices
R	H.	Circuit Breaker Safety Clips
R	J.	Corrosion Resistant Steel Lockwire Dia. 0.8 mm (0.03 in.)
	Referenced Procedures	
	- 07-11-00, P. Block 1	Lifting and Jacking
	- 24-41-00, P. Block 301	AC External Power Control
	- 29-10-00, P. Block 301	Main Hydraulic Power - Pressurization/ Depressurization
	- 29-14-00, P. Block 301	Reservoir-Pressurization/Depressurization
	- 32-12-11, P. Block 301	Main Gear Main Door (Ground Door(s) Opening).
	- 32-31-00, P. Block 501	Normal Extension and Retraction

2. Procedure

A. Job Set-Up
(1)On panel 4VU
- make certain that landing gear control lever is in **DOWN** position tion and prohibit its operation by displaying a warning notice.

(2)Between the First Officer's and Third Occupant's.
- make certain that landing gear Free Fall extension control handle is in Normal position.

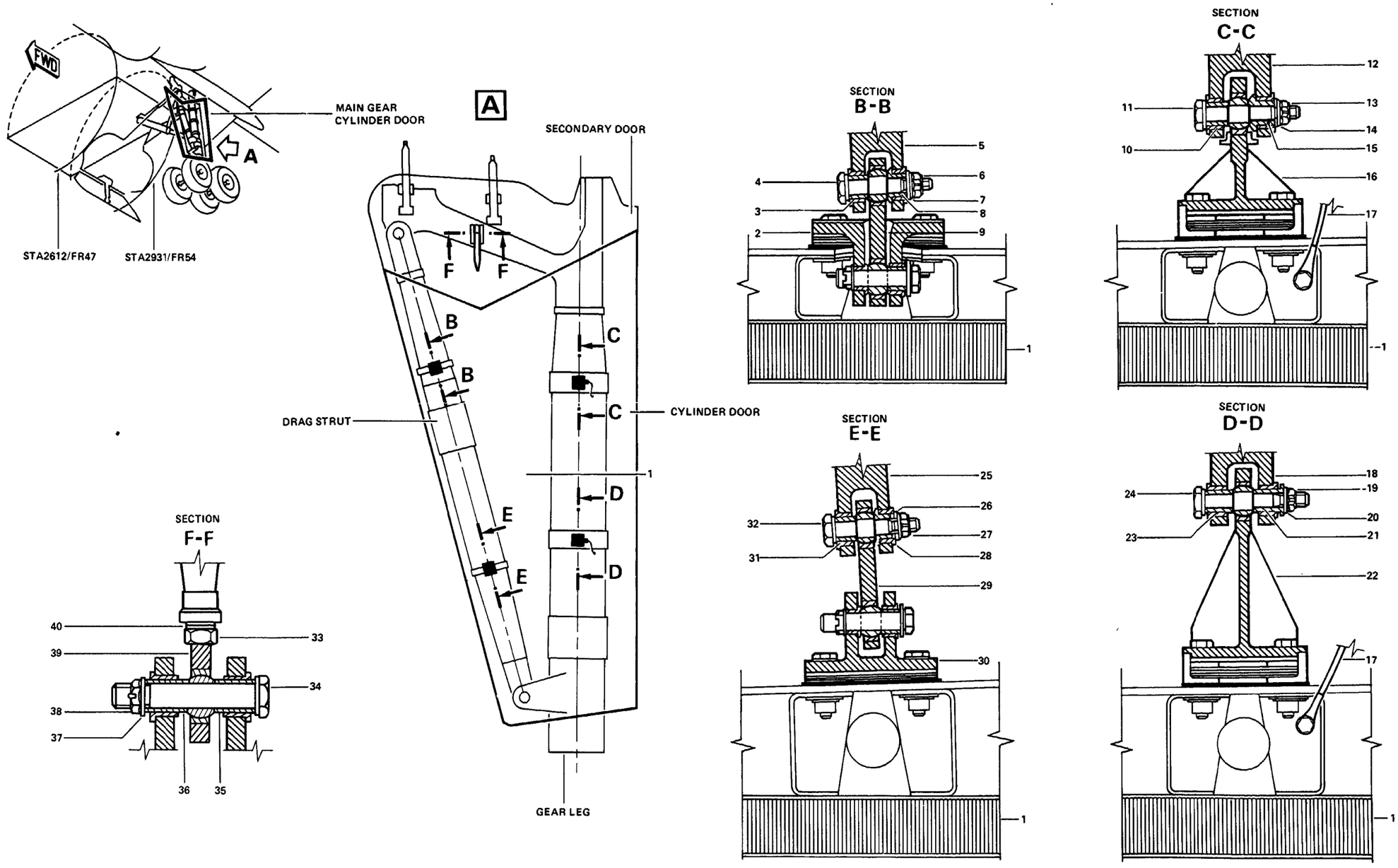
(3)Position access platform.

(4)Position safety barriers prohibiting access to gear door travel ranges.
WARNING : MAKE CERTAIN THAT THE DOOR TRAVEL RANGES ARE CLEAR.
(5)Open main gear main doors (Ref. 32-12-11, P. Block 301).
WARNING : WHEN DOORS ARE OPEN MAKE CERTAIN THAT SAFETY COLLARS ARE POSITIONED ON DOOR ACTUATING CYLINDERS.
(6)Depressurize Green hydraulic reservoir (Ref. 29-14-00, P. Block 301), and prohibit its pressurization by displaying a warning notice
- On panel 429VU to prohibit APU starting
- On reservoir pressurization connector.
(7)Depressurize Green hydraulic system (Ref. 29-10-00, P. Block 301), and prohibit its pressurization by displaying a warning notice :
- On Green hydraulic system ground connectors
- On panel 427VU to prohibit operation of Green electric pumps (ELEC PUMPS pushbutton switch)

(8)Connect hydraulic ground power cart to Green hydraulic system ground connectors (Ref. 29-10-00, P. Block 301).

B. Removal
(Ref. Fig. 401)
(1)Disconnect bonding jumpers (17).
(2)Disconnect secondary door control rod (39) from its attachments.
(a)Remove cotter pin, remove nut (38), washer (37) spacer (36), bolt (34) and spacer (35) and retain for installation.
(b)Disengage control rod (39).
(3)Disconnect cylinder door (1) at lower attachment.
(a)On drag strut :
1 Remove cotter pin, remove nut (27), washer (26) bolt (32) and retain spacer (31) and bushing (28) for installation.
2 Disengage rod (29).
(b)On landing gear leg :
1 Remove cotter pin, remove nut (19), washer (20), bolt (24), remove spacers (21) and (23) and retain for installation.
WARNING : SUPPORT WEIGHT OF DOOR.
(4)Remove upper attachment parts.
(a)On drag strut
1 Remove cotter pin, remove nut (6), washer (7), bolt (4), spacer (3) and bushing (8) and retain for installation.
2 Disengage rod (9).
(b)On landing gear leg :
1 Remove cotter pin, remove nut (13), washer (14), bolt (11), bushing (15) and spacer (10) and retain for installation.
(5)Remove door (1).

C. Preparation of Replacement Component
(1)Clean all parts to be installed with Material No. 11-002 (Ref. 20-31-00) and dry with filtered compressed air.
R (2)Smear attach bolts with Material No. 04-004 or Material No. 04-022.
R NOTE : Do not mix Material No. 04-004 with Material No. 04-022.
R You can use Material No. 04-022 as an alternative to
R Material No. 04-004. Clean and degrease the parts before you use



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Main Landing Gear Cylinder Door - Attachments
Figure 401

R Material No. 04-022.

D. Installation

**ON A/C 001-003,

(Ref. Fig. 401, 402)

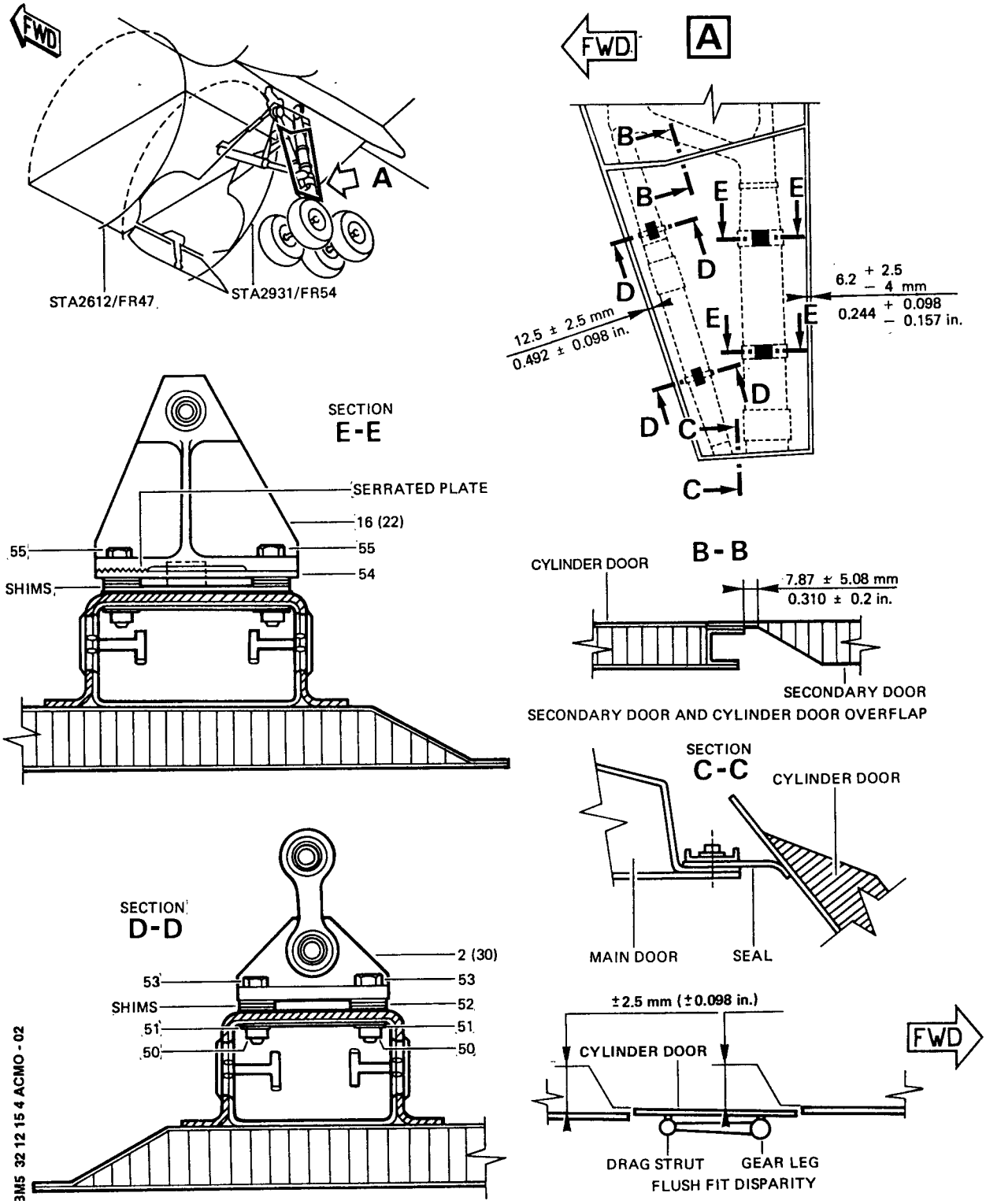
R **ON A/C 004-200,

(Ref. Fig. 401, 403)

**ON A/C ALL

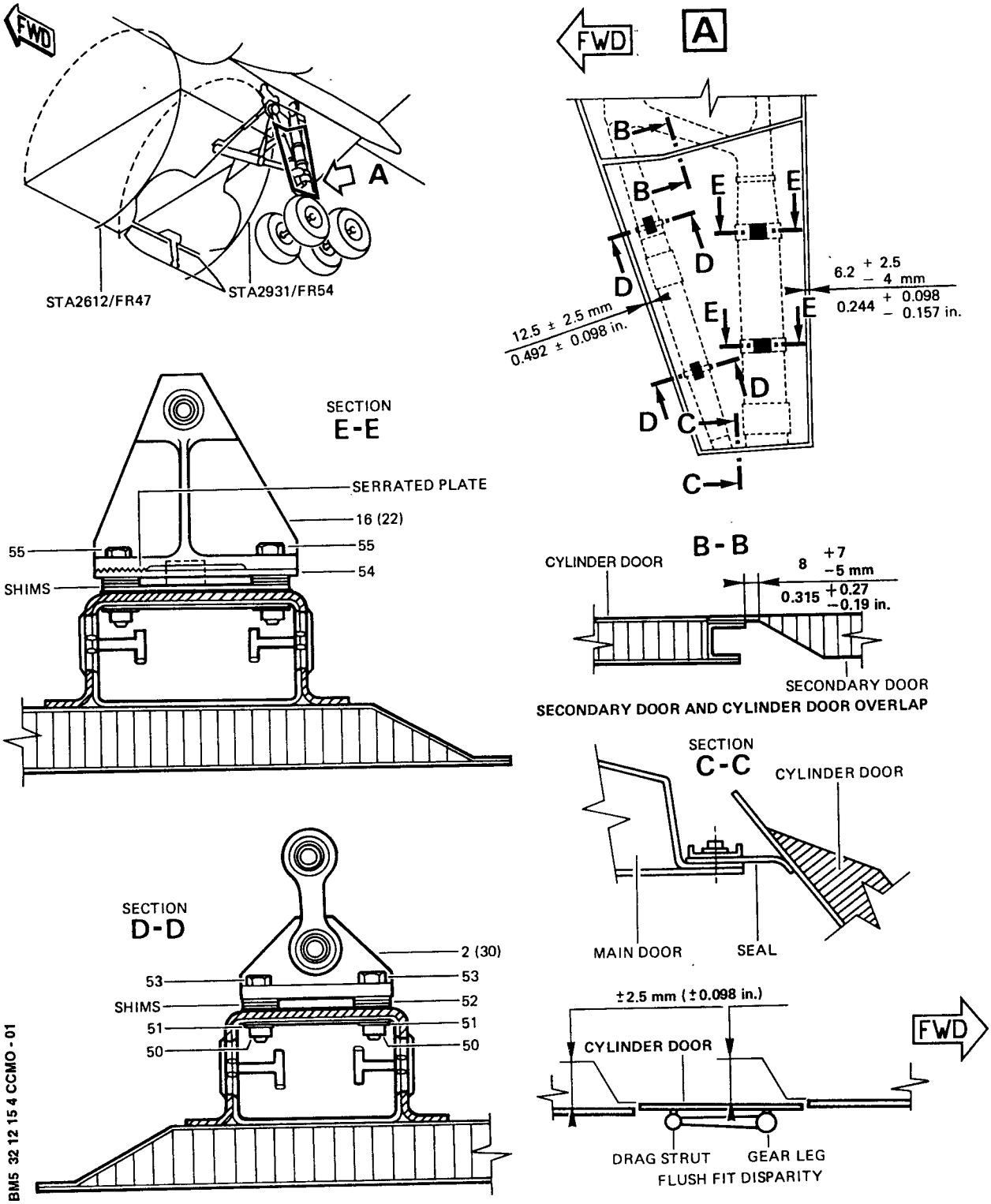
NOTE : Jack-up aircraft until wheels are clear of ground (Ref. 07-11-00, P. Block 1).

(1)Position cylinder door (1) fittings (12) and (18) on landing gear leg clevises.
  (a)Line up bores of landing gear leg fittings (12) and (18) with bores of cylinder door (1) mountings (16) and (22).
  (b)Install door (1) on upper attach fitting (12) on landing gear leg.
    1 Install bushing (15), spacer and bolt (11).
    2 Install washer (14) and nut (13) and safety with cotter pin.
  (c)Install door (1) on lower attach fitting (18) on landing gear leg.
    1 Install spacers (21) and (23) and bolt (24).
    2 Install washer (20) and nut (19) and safety with cotter pin.
(2)Install door (1) on drag strut attach fittings (5) and (25).
  (a)Line up bores of rods (9) and (29) on door mountings (2) and (30) with bores of drag strut attach fittings (5) and (25).
  (b)Install cylinder door (1) on drag strut lower attach fitting (25).
    1 Install bushing (28), spacer (31), bolt (32) and washer (26).
    2 Install nut (27) and safety with cotter pin.
  (c)Install door (1) on drag strut lower fitting (5).
    1 Install bushing (8), spacer (3), bolt (4) and washer (7).
    2 Install nut (6) and safety with cotter pin.
(3)Connect secondary door control rod (39).
  (a)Install spacer (35), bolt (34) and spacer (36).
  (b)Install washer (37) and nut (38) and safety with cotter pin.
  (c)Loosen nuts (33) and lockwashers (40) located on control rod (39). Adjust the rod to increase its length by a few millimeters.
(4)Connect bonding jumpers (17).
(5)Pressurize hydraulic reservoirs (Ref. 29-14-00, P. Block 301).
  WARNING : MAKE CERTAIN THAT DOOR TRAVEL RANGES ARE CLEAR.
(6)Close main landing gear doors (Ref. 32-12-11, P. Block 301).
  WARNING : MAKE CERTAIN THAT LANDING GEAR AND DOOR TRAVEL RANGES ARE CLEAR.
(7)Make certain that hydraulic ground power cart flow and delivery pressure are set to minimum.
(8)Energize the aircraft electrical network (Ref. 24-41-00, P. Block 301).
  - Make certain that electronics racks ventilation is correct.
(9)Remove landing gear safety pins.



Main Gear Cylinder Door - Adjustment
Figure 402

R



Main Gear Cylinder Door - Adjustment
Figure 403

(10)Open, safety and tag the following circuit breaker :

PANEL	SERVICE	IDENT.	LOCATION
133VU	HYDRAULIC/ELEC/PUMPS/WARN	4GE	331/V60

**ON A/C 001-003,

(11)On panel 4VU
- place landing gear control lever in UP position.

(12)Regulate hydraulic ground power cart delivery pressure so that landing gears retract and doors close as slowly as possible.

(13)On panel 4VU
- place landing gear control lever in Neutral position and prohibit its operation by displaying a warning notice.

(14)Shut down the hydraulic ground power cart supply (Ref. 29-10-00, P. Block 301).

(15)De-energize the aircraft electrical network. (Ref. 24-41-00, P. Block 301).

(16)Check that gap between cylinder door (1) and wing is $6.2\ ^{+2.5}_{-4}$ mm $(0.244\ ^{+0.098}_{-0.157}$ in.) at the rear and 12.5 ±2.5 mm (0.492 ±0.098 in.) at the front.

(17)Note disparity if gaps are not within tolerance.

(18)Check that wing-to-door flush fit is within ±2.5 mm (±0.098 in.).

(19)Note disparity if flush fit is out of tolerance.

(20)Note clearance between secondary door and cylinder door (1) at overlap.

NOTE : After adjustment, doors should be in light contact with each other over at least 50% of length of overlap. Clearance at overlap should be 7.87 ±5.08 mm (0.310 ±0.2 in.).

WARNING : MAKE CERTAIN THAT DOOR AND LANDING GEAR TRAVEL RANGES ARE CLEAR.

R **ON A/C 004-200,

(11)On panel 4VU
- place landing gear control lever in UP position.

(12)Regulate hydraulic ground power cart delivery pressure so that landing gears retract and doors close as slowly as possible.

(13)On panel 4VU
- place landing gear control lever in Neutral position and prohibit its operation by displaying a warning notice.

(14)Shut down the hydraulic ground power cart supply (Ref. 29-10-00, P. Block 301).

(15)De-energize the aircraft electrical network. (Ref. 24-41-00, P. Block 301).

(16)Check that gap between cylinder door (1) and wing is $6.2\ ^{+2.5}_{-4}$ mm

+0.098
(0.244 -0.157 in.) at the rear and 12.5 ±2.5 mm (0.492 ±0.098 in.) at the front.

(17)Note disparity if gaps are not within tolerance.
(18)Check that wing-to-door flush fit is within ±2.5 mm (±0.098 in.).
(19)Note disparity if flush fit is out of tolerance.
(20)Note clearance between secondary door and cylinder door (1) at overlap.
NOTE : After adjustment, doors should be in light contact with each other over at least 50% of length of overlap. Clearance at overlap should be 8 +7 -5 mm (0.315 +0.27 -0.19 in.).
WARNING : MAKE CERTAIN THAT DOOR AND LANDING GEAR TRAVEL RANGES ARE CLEAR.

**ON A/C ALL

(21)Energize the aircraft electrical network. (Ref. 24-41-00, P. Block 301).
- Make certain that electronics racks ventilation is correct.
(22)Pressurize Green Hydraulic System (Ref. 29-10-00, P. Block 301).
(23)On panel 4VU
- place landing gear control lever in **DOWN** position.
(24)With gear downlocked, install landing gear safety pins.
WARNING : MAKE CERTAIN THAT DOOR TRAVEL RANGES ARE CLEAR.
(25)Open main gear main door concerned (Ref. 32-12-11, P. Block 301).
WARNING : WHEN DOOR IS OPEN MAKE CERTAIN THAT SAFETY COLLAR IS POSITIONED ON DOOR ACTUATING CYLINDER.
(26)Depressurize Green hydraulic system (Ref. 29-10-00, P. Block 301).
(27)De-energize the aircraft electrical network. (Ref. 24-41-00, P. Block 301).
(28)If the gap between the cylinder door and the wing is out of tolerance :
(a)Slightly loosen screws (55) on mountings (16) and (22) at point where door is attached to gear leg.
(b)Relocate serrated plates (54) in order to position the door correctly.
(c)Tighten screws (55).
(29)If gap between cylinder door and main door is out of tolerance.
(a)At the front :
At points where door (1) connects with the drag strut.
1 Remove screws (53), washers (51) and mountings (2) and (30).
2 Increase or decrease thickness of shin (52) according to disparity noted.
3 Install mountings (2) and (30), washers (51) and screws (53).
(b)At the rear :
At points where door connects with landing gear leg repeat operations described above.
(30)According to the clearance noted between the secondary and the cylinder door :
(a)Adjust rod (39) length so that secondary door in its closed position is in light contact with the cylinder door over at least 50% of length of overlap.
(b)Tighten
lockwashers (40) and nuts (33) and wirelock.
WARNING : MAKE CERTAIN THAT DOOR TRAVEL RANGES ARE CLEAR.

(31)Close main gear main door (Ref. 32-12-11, P. Block 301).
WARNING : MAKE CERTAIN THAT DOOR AND LANDING GEAR TRAVEL RANGES ARE CLEAR.
(32)Not applicable
(33)Not applicable
(34)Remove landing gear safety pins.
CAUTION : MAKE CERTAIN THAT CIRCUIT BREAKER 4GE ON PANEL 128VU, LINE 804, IS OPEN, SAFETIED AND TAGGED.
(35)Energize the aircraft electrical network (Ref. 24-41-00, P. Block 301).
- Make certain that electronics racks ventilation is correct.
(36)On panel 4VU
- place landing gear control lever in UP position.
(37)Pressurize Green hydraulic system (Ref. 29-10-00, P. Block 301). Regulate hydraulic ground power cart delivery pressure so that gears retract and doors close as slowly as possible.
(38)On panel 4VU
- place landing gear control lever in Neutral position and prohibit its operation by displaying a warning notice.
(39)Shut down the hydraulic ground power cart supply (Ref. 29-10-00, P. Block 301).
(40)De-energize the aircraft electrical network. (Ref. 24-41-00, P. Block 301).
(41)Open safety and tag the following circuit breaker :

PANEL	SERVICE	IDENT.	LOCATION
22VU	LDG/GEAR/EXTEND/CTL	1GA	201/J27

(42)Check that adjustments have been correctly carried out (gaps, secondary door/cylinder door flush fit and overlap).
(43)Remove safety clip and tag and close circuit breakers 1GA and 4GE.
WARNING : MAKE CERTAIN THAT DOOR AND LANDING GEAR TRAVEL RANGES ARE CLEAR.
(44)Energize the aircraft electrical network. (Ref. 24-41-00, P. Block 301).
- Make certain that electronics racks ventilation is correct.
(45)Pressurize the Green hydraulic system (Ref. 29-10-00, P. Block 301).
(46)On panel 4VU
- place landing gear Normal control lever in DOWN position.
(47)With landing gear downlocked install landing gear safety pins.
WARNING : MAKE CERTAIN THAT DOOR TRAVEL RANGES ARE CLEAR.
(48)Open main gear main doors (Ref. 32-12-11, P. Block 301).
WARNING : WHEN DOORS ARE OPEN MAKE CERTAIN THAT SAFETY COLLARS ARE POSITIONED ON DOOR ACTUATING CYLINDERS.
(49)Depressurize Green hydraulic system (Ref. 29-10-00, P. Block 301).
(50)De-energize the aircraft electrical network (Ref. 24-41-00, P. Block 301).
(51)Carry out further door adjustment if necessary.
(Adjustment of gaps, flush fit and overlap of secondary door on cylinder door).

E. Test

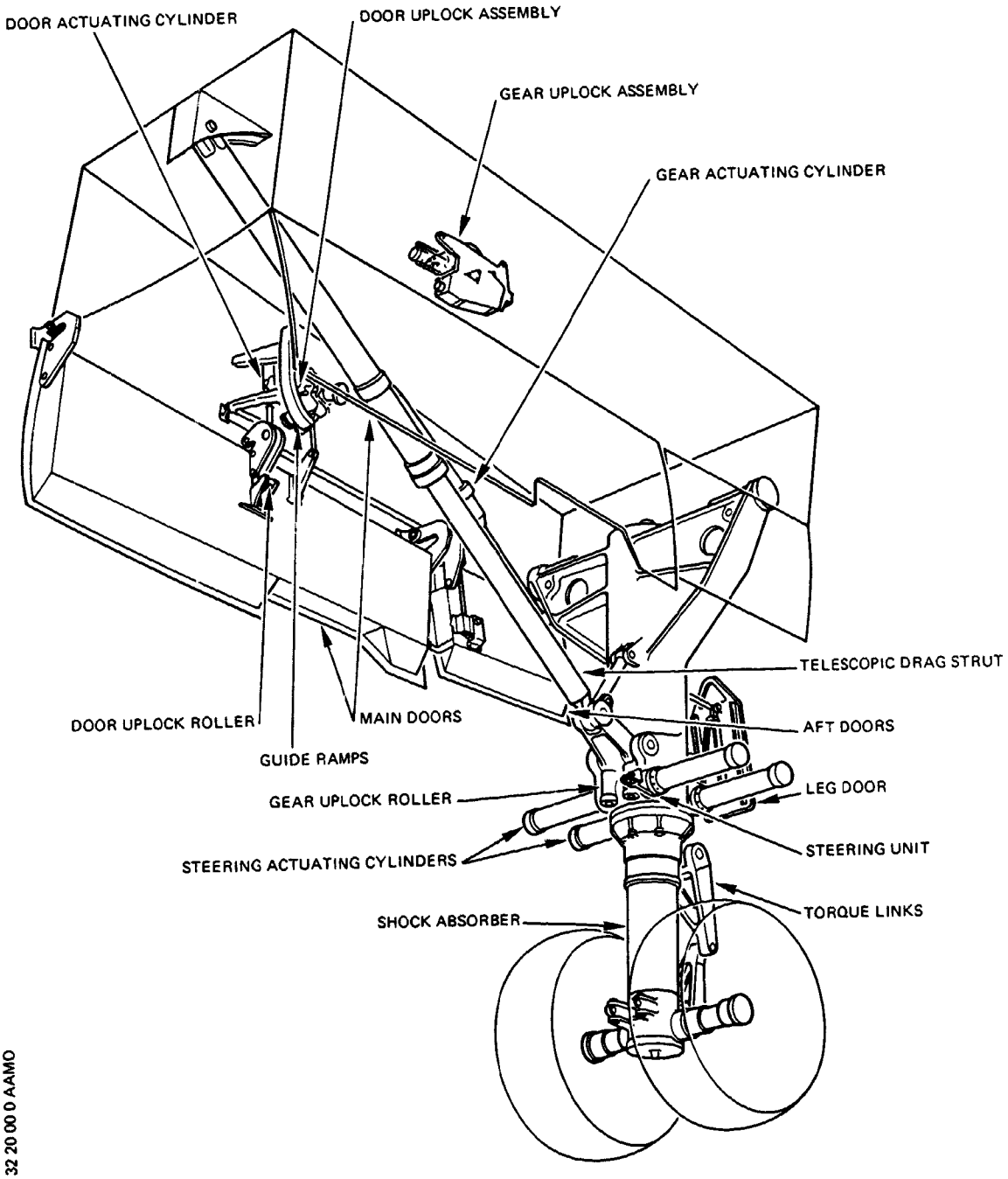
(1)Carry out a Normal gear retraction and extension functional test (Ref. 32-31-00, P. Block 501).

F. Close-Up

(1)Make certain that working area is clean and clear of tools and miscellaneous items of equipment.
WARNING : MAKE CERTAIN THAT AREA UNDER THE AIRCRAFT IS CLEAR.
(2)Lower the aircraft onto its wheels (Ref. 07-11-00, P. Block 1).
WARNING : MAKE CERTAIN THAT DOOR TRAVEL RANGES ARE CLEAR.
(3)Close main gear doors (Ref. 32-12-11, Page Block 301).
(4)Disconnect hydraulic ground power cart (Ref. 29-10-00, P. Block 301).
(5)Remove warning notice.
(6)Close access doors, remove access platform and safety barriers.
(7)Remove all ground handling and maintenance equipment, standard and special tools, together with ground power and replenishing equipment, all access equipment and miscellaneous items.

NOSE GEAR AND DOORS - DESCRIPTION AND OPERATION

1. General (Ref. Fig. 001)
   The nose gear is hinged on the structure between frames 16A and 17.
   The nose gear includes a hydraulic actuating cylinder, a telescopic drag strut, direct acting shock absorber and a system for steering the nose wheels on the ground.
   Five doors close off the nose gear well and restore the fuselage profile.



Nose Gear and Doors
Figure 001

WARNING : CHECK THAT THE LANDING GEAR GROUND SAFETIES INCLUDING WHEEL CHOCKS ARE IN POSITION.

BEFORE APPLYING OR RELIEVING HYDRAULIC SYSTEM PRESSURE, MAKE CERTAIN THAT THE TRAVEL RANGES OF THE CONTROL SURFACES ARE CLEAR.

BEFORE PRESSURIZING HYDRAULIC SYSTEMS, CHECK THAT ALL CONTROLS ARE SET TO CORRESPOND WITH THE ACTUAL POSITION OF THE SERVICES THEY OPERATE.

R 1. Reason for the Job

R General visual inspection of the nose gear and doors.

R 2. Equipment and Materials

ITEM	DESIGNATION
A.	Safety Barriers
B.	Access Platforms 2 m - 2.60 m (6 ft. 7 in. - 8 ft. 7 in.)
C.	Warning Notices
Referenced Procedures	
- 29-10-00, P. Block 301	Main Hydraulic Power - Pressurization/ Depressurization
- 32-12-11, P. Block 301	Main Gear Main Door/Ground Door(s) Opening
- 32-22-11, P. Block 301	Nose Gear Main Door/Ground Door(s) Opening
- 32-31-18, P. Block 401	Nose Gear Sequence Valve
- 32-31-18, P. Block 801	Nose Gear Sequence Valve

R 3. Procedure

A. Job Set-Up
(1)On panel 4VU
- make certain that landing gear control lever is in **DOWN** position and prohibit its operation by displaying a warning notice.

(2)Between First Officer's and Third Occupant's seats
- make certain that landing gear Free Fall extension control handle is in Normal position

(3)Position access platforms.
(4)Position safety barriers prohibiting access to gear door travel ranges.
WARNING : MAKE CERTAIN THAT THE DOOR TRAVEL RANGES ARE CLEAR.
(5)Open RH main gear door and nose gear doors (Ref. 32-12-11, P. Block 301 and 32-22-11, P. Block 301).
WARNING : WHEN DOORS ARE OPEN MAKE CERTAIN THAT SAFETY COLLARS ARE POSITIONED ON DOOR ACTUATING CYLINDERS.
(6)Depressurize Green hydraulic system (Ref. 29-10-00, P. Block 301) and prohibit pressurization by displaying a warning notice

- On Green hydraulic system ground connectors.
- On panel 427VU, to prohibit operation of Green electric pumps (ELEC PUMPS pushbutton switch).

B. Check

(1)General Check

(a)Check all lubricators for correct condition.

(b)Make certain that protective paint on all surfaces of landing gear components (shock strut, drag strut, actuating cylinder rods, uplock assemblies) is in correct condition.

CAUTION : WHENEVER THE SLIGHTEST BARE-SPOT IS EVIDENCED ON PAINTWORK, TOUCH-UP AS REQUIRED TO PREVENT OXIDATION.

(c)Check on all attaching and hinge components that :

- Screws and nuts are correctly tightened
- Safetying devices (cotter pins, lockplates, lockwire) are installed and are effective.
- Bolts subject to rotation, screws, nuts, washers are in correct condition (no evidence of oxidation).

(d)Check identification plates for security of attachment.

(e)Check bonding jumpers for correct condition.

(2)Uplock assembly check.

(a)Check uplock hooks for damage in uplock roller impact area.

(b)Check manual uplock release controls for correct condition.

(3)Actuating cylinders (gear and doors) and telescopic drag strut check.

(a)Check cylinder ends and rod end fitting lock nuts for security and correct safetying (spring clip for cylinder end, lock plate for end fitting).

(b)Check sliding rods for scores, pit marks, oxidation and flaking of chrome plating especially where chrome plating ends (if necessary use a magnifying glass).

(4)On nose gear sequence valves make certain that the red painted section of the protective cap serving to indicate a valve spool jamming (rupture of shear pins) is not visible. Should this section be visible, check the condition of the shear pin.

(a)If the protective cap can be reset (Ref. 32-31-18, P. Block 801).

(b)If the protective cap cannot be reset, the valve must be replaced (Ref. 32-31-18, P. Block 401).

(5)Landing gear leg check.

(a)Check for deformation and incipient cracks, especially at hinge and attachment points.

(b)Check shock strut lower section (leak detector)for hydraulic fluid leakage.

(c)Check shock absorber sliding tube for scores, pit marks, oxidation and flaking of chrome plating especially where chrome plating ends.

(d)Check steering unit components (cables, pulleys, nose wheel steering control valve, steering actuating cylinders).

(e)Check uplock roller for correct condition (impact damage, brinelling) and make certain that it rotates freely.

(f)Check taxi lights for correct condition and security of attachment.

(6)Landing gear door check

(a)Check doors for correct condition (evidence of distortion).
(b)Check door and linkage rods for correct condition and security of attachment.
(c)Check door actuating cylinder line unions for hydraulic fluid leakage.

(7)Hose check
(a)If cure date is marked on a collar indicating the service life month and year, check this date.
If this date has been reached replace hose.
NOTE : There is a cure date only for elastomer hoses. There is no cure date for teflon hoses, therefore, this check is not necessary.
(b)Make certain that correct diameter clamps are installed. Check clamps for correct condition, security of attachment and for evidence of wear due to fretting (vibration, pressure surges).
(c)Check hoses along routing
- for evidence of fretting with other hoses/lines, partitions or units.
- for evidence of twisting.
(d)Make certain there is sufficient free-play by moving the center part of the hose up and down.
(e)Check for hydraulic fluid leakage at unions and that safetying provisions are correct.

(8)Rigid line check
(a)Check for distortion, incipient cracks, damage due to impact especially at bends and at unions connecting lines to the various units.
(b)Make certain that no sheathing, rail or metallic part can damage the line in its housing.
(c)Check for hydraulic fluid leakage at unions, and for correct safetying.
(d)Check brackets, line support blocks, and attachment clamps for security of attachment.

(9)Hydraulic component check
(a)Check attaching hardware for security of attachment and safetying. Check for hydraulic fluid leakage at unions.
(b)On electrically powered equipment, check electrical connectors for security of attachment and safetying.
(c)On mechanically controlled equipment, check hinge points for correct condition.

(10)Electrical wiring check
(a)Check that electrical connectors are correctly connected and safetied
(b)Make certain that electrical connectors are not contaminated by hydraulic fluid. Clean if necessary.
(c)Make certain that electrical wiring is fully protected and check its condition.

C. Close-Up
(1)Make certain that working area is clean and clear of tools and miscellaneous items of equipment.
WARNING : MAKE CERTAIN THAT DOOR TRAVEL RANGES ARE CLEAR.
(2)Close landing gear doors (Ref. 32-12-11, P. Block 301 or 32-22-11, P. Block 301).
(3)Remove warning notices.

(4)Close access doors, remove access platforms and safety barriers.
(5)Remove all ground handling and maintenance equipment, standard and special tools, together with ground power and replenishing equipment, all access equipment and miscellaneous items.

NOSE GEAR - DESCRIPTION AND OPERATON

1. General

The nose landing gear is a dual-wheel steerable oleo-pneumatic (nitrogen) shock strut unit which retracts forward and up into the fuselage during flight and is completely enclosed by doors when retracted.

The nosegear strut is supported vertically and laterally by two side braces and a crossarm which are integral with the strut casting. The gear is suspended from two trunnions pivoting in two swivel bearings located between FR16a and FR17.

The wheels are mounted on an axle incorporated in the lower end of the shock absorber.

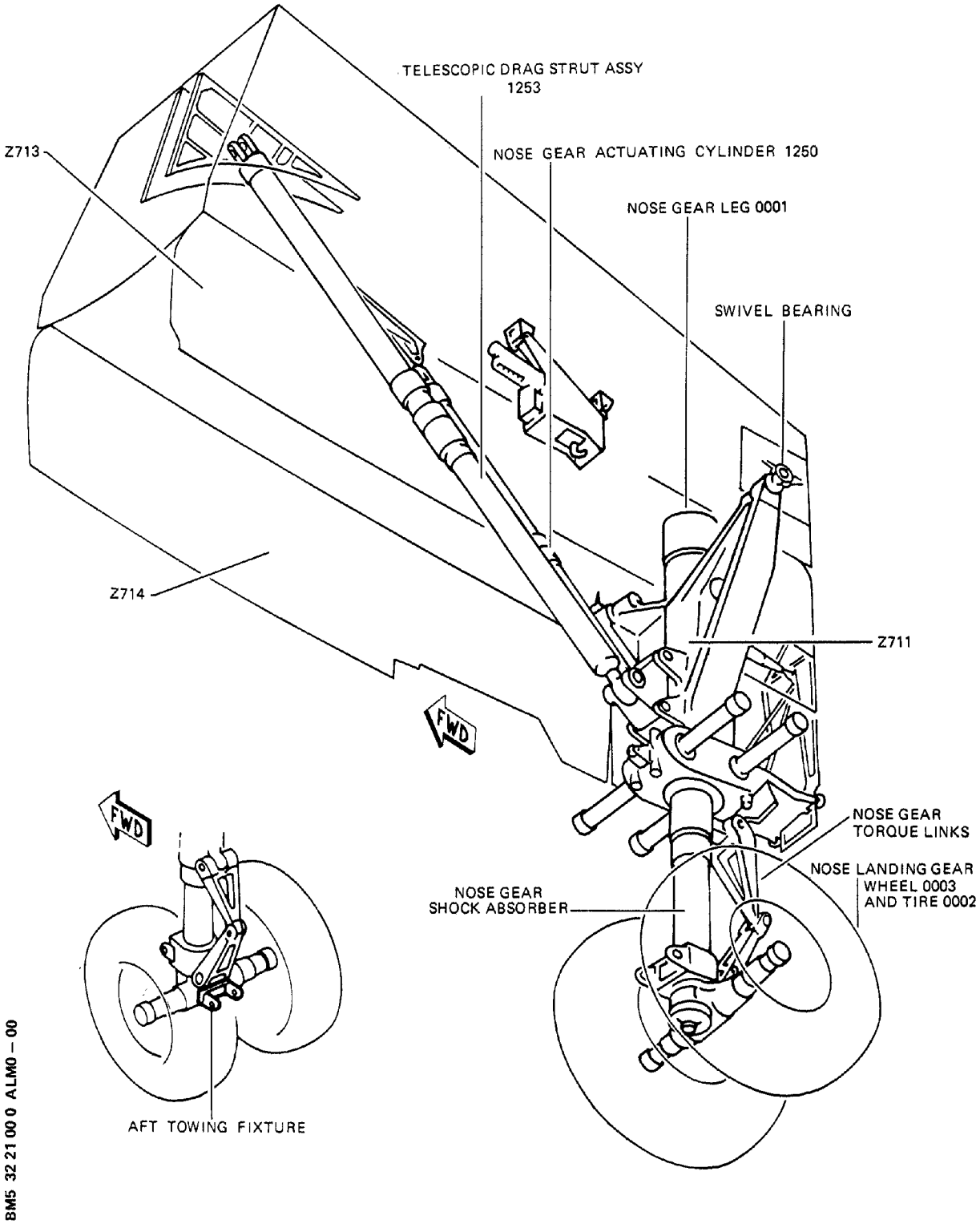
The nose-gear actuating cylinder located at front of gear above the telescopic drag strut retracts and extends the gear. The telescopic drag strut braces the gear in fore-and-aft direction with gear in downlocked position.

A roller mounted on the gear automatically engages with an uplock assembly installed on the aircraft structure with gear in fully retracted position.

2. Component Location

(Ref. Fig. 001)

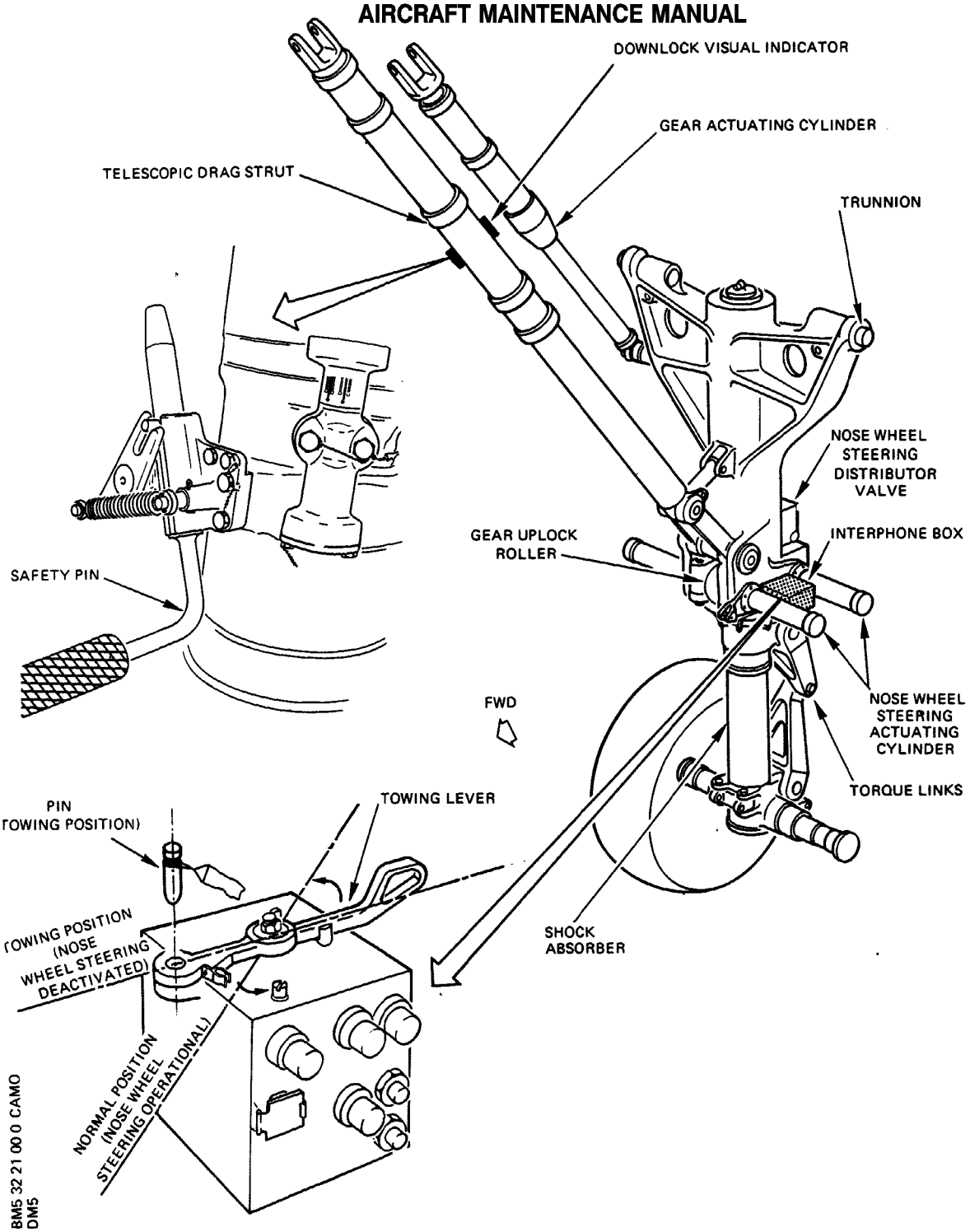
FIN	FUNCTIONAL DESIGNATION	PANEL	ZONE	ACCESS DOOR	ATA REF.
0001	LEG-NOSE LANDING GEAR		711		32-21-11
	ABSORBER-NOSE GEAR SHOCK		711		32-21-14
0002	TIRE-NOSE LANDING GEAR WHEEL		711		
0003	WHEEL-NOSE LANDING GEAR		711		32-41-12
1250	ACTUATING CYL-NLG		711		32-31-22
1253	STRUT ASSY-NLG TELESCOPIC		711		32-31-24
	BEARING-SWIVEL		711		32-21-13
	TORQUE LINKS-NOSE GEAR		711		32-21-15



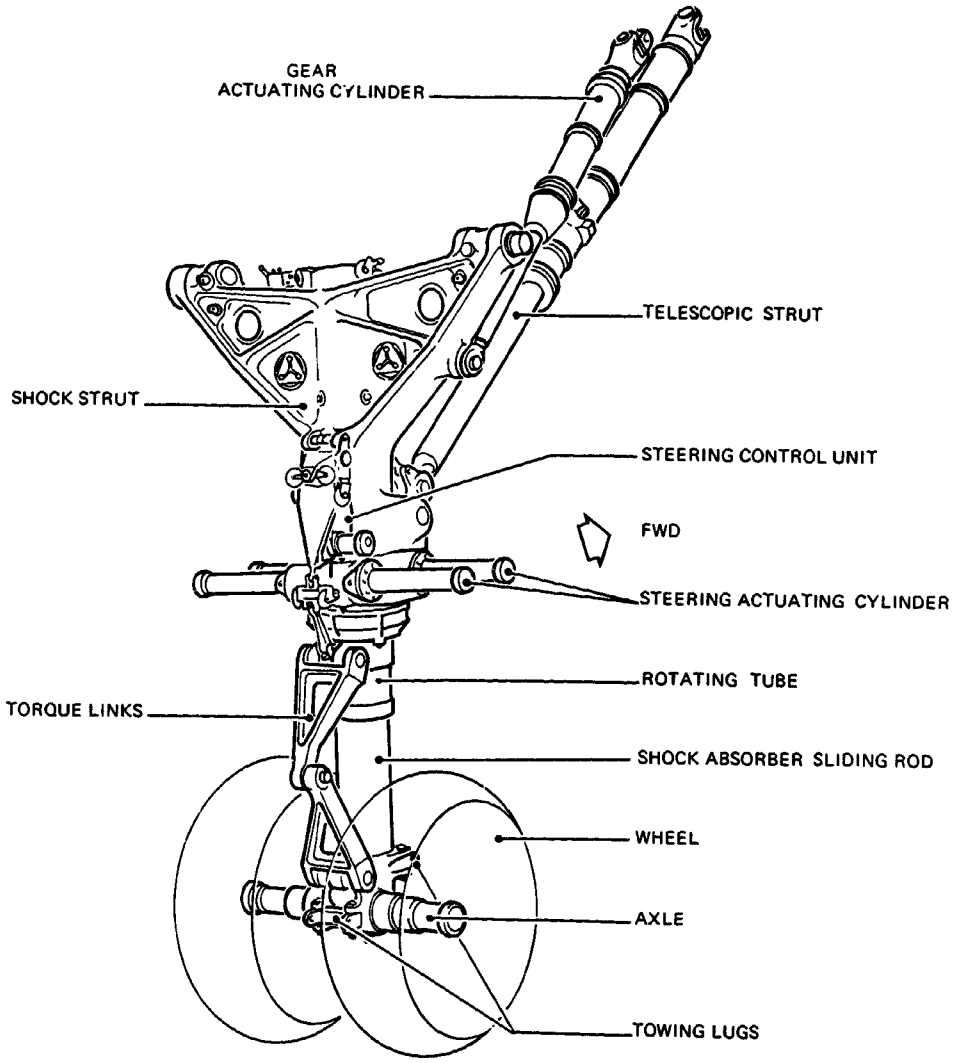
Nose Gear - Component Location
Figure 001

3. Nose Gear Structure
(Ref. Fig. 002)

A. Main Components
(Ref. Fig. 003)
(Ref. Fig. 004)
The main components of the nose landing gear are as follows :
(1)The leg with 2 twin-wheels offset to the rear.
The leg comprises :
(a)The shock strut; a structural component connected to the structure by 2 swivel bearings. (Ref. Fig. 005)
(b)A steerable assembly or rotating tube guided by 2 bearings housed in the shock strut and driven by a pinion.
(c)A shock absorber including:
1 A sliding rod guided in the rotating tube by 2 bearings (the lower bearing is spherical) and connected to the rotating tube by torque links.
2 The axle, at the lower part of the sliding rod, fitted with 2 40 x 14 wheels.
(d)The shock absorber is housed in the sliding rod and has a stroke of 450 mm (17.716 in.).
(e)A system of cams which returns the rotating tube to the centered position when the gear is in flight configuration. When the shock absorber extends, 2 cams engage and center the rotating tube. One of the two cams is attached to the sliding rod and the other to the fixed (upper) rod which is maintained in the centered position (rotation inhibited) with respect to the shock strut.
(2)A telescopic strut (Ref. 32-31-00, P. Block 1) which downlocks the nose gear
(3)An actuating cylinder (Ref. 32-31-00, P. Block 1) which retracts and extends the nose gear.
(4)A nose wheel steering system (Ref. 32-51-00, P. Block 1) which serves to guide the aircraft on the ground.
(5)Two proximity detectors at the rear of the shock strut providing both shock absorber compressed and nose wheels centered information.
(6)Two ECE type microswitches on the telescopic strut providing nose gear downlocked information.
Downlocking can also be checked by means of a visual indicator.



Nose Gear
Figure 002



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Nose Gear - General
Figure 003

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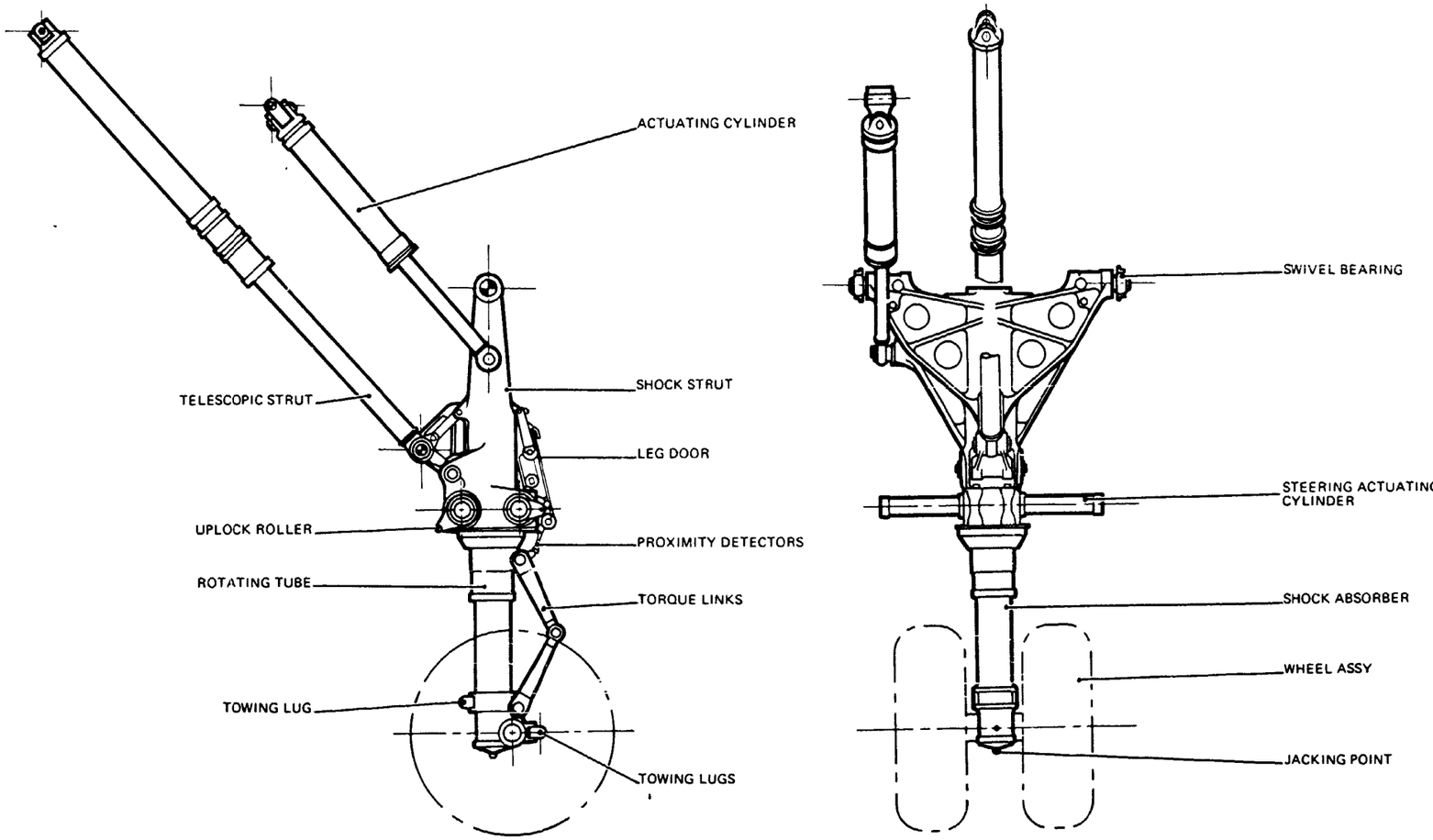

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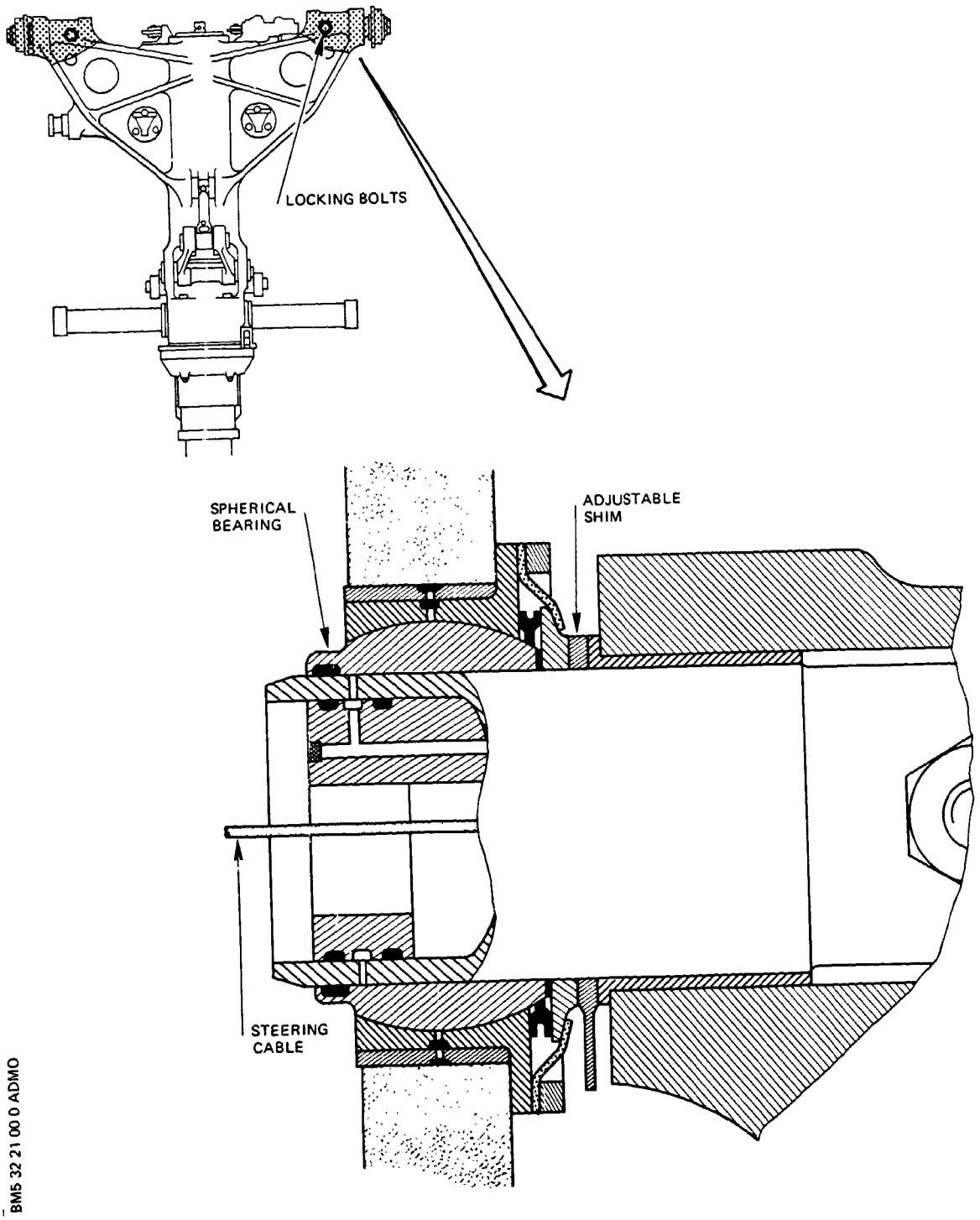
Nose Gear - Side View and Looking Aft
Figure 004



Nose Gear - Leg Attachments
Figure 005

B. Materials Used
(1)High-tensile steel 35NCD16 treated at 180-200 hbars
- sliding rod
- wheel axle and various shafts

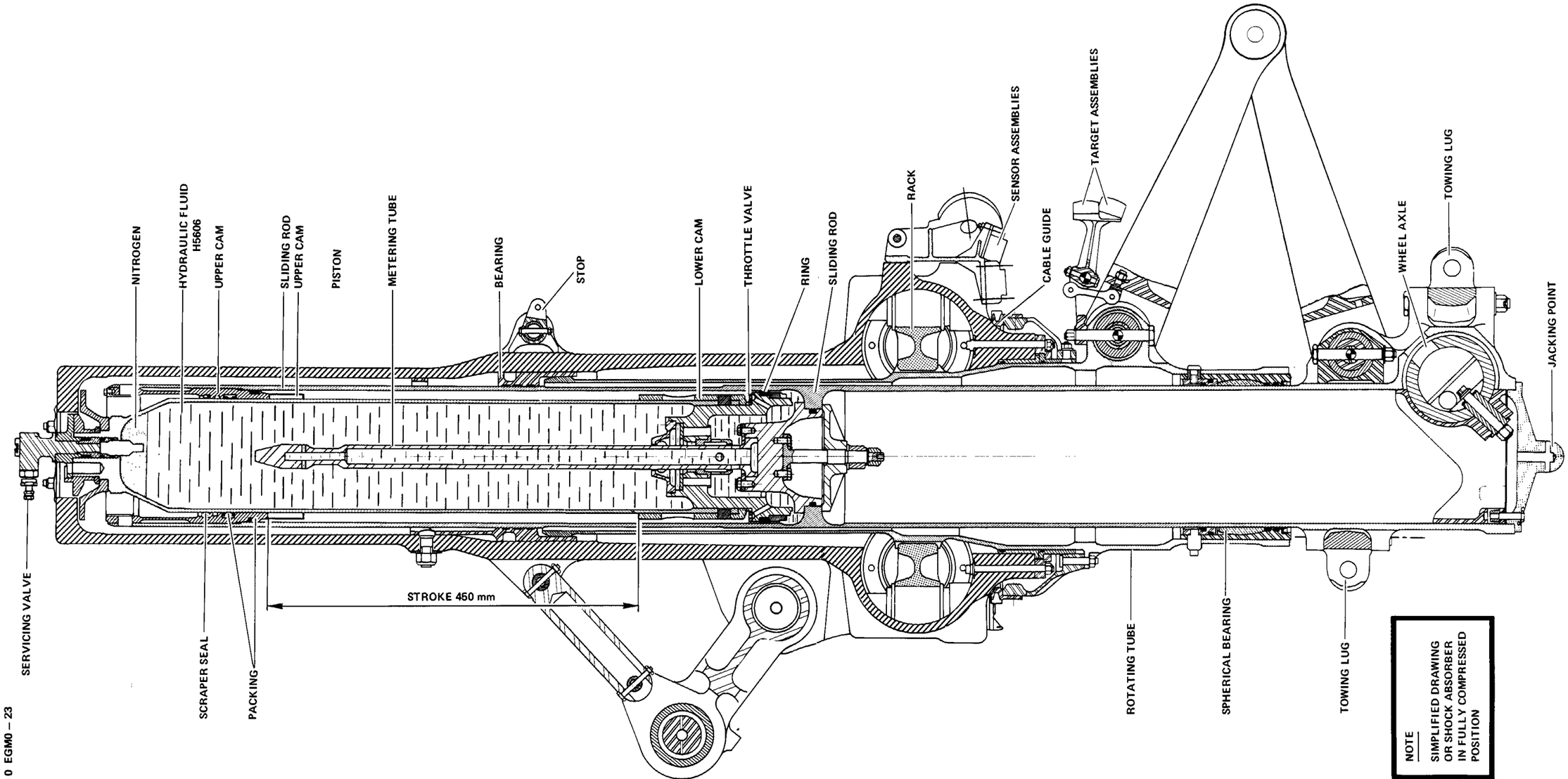
(2)Steel 35NCD16 treated at 123-137 hbars or steel 35CD4 treated at 118-132 hbars
- Rotating tube
- Shock absorber
- Fixed (upper) rod
- Cylinders and wheel steering rack
- Cylinder and telescopic strut sliding rod
- Cylinder and actuating cylinder sliding rod

(3)Aluminum alloy AU2GN treated at 41.2 hbars and above, or AU4GA treated at 44 hbars and above
- Shock strut
- Shock absorber piston
- Telescopic strut and actuating cylinder pistons.

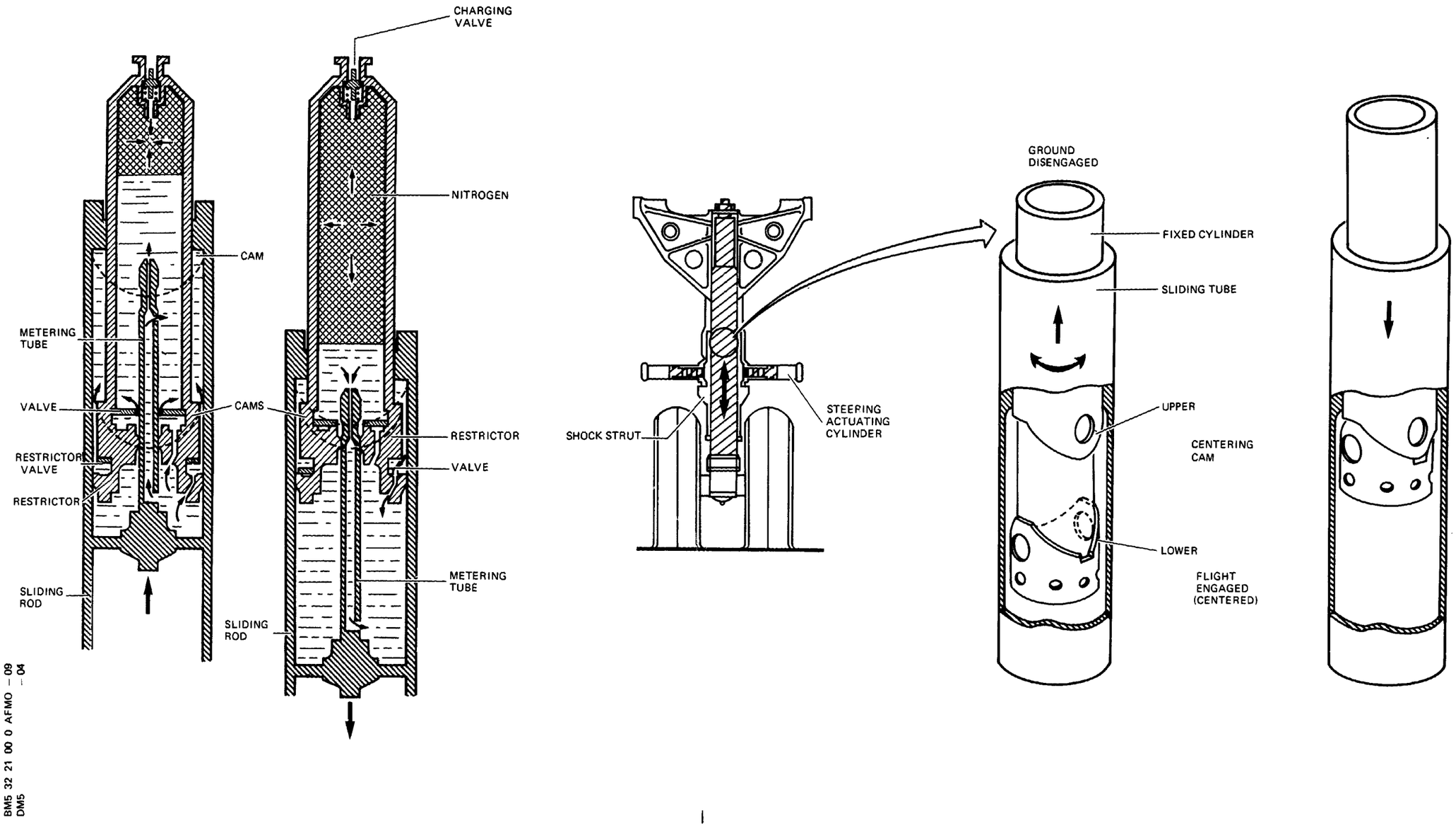
C. Protection and Surface Treatment
(Ref. 32-11-00, P. Block 1, Para. 3.E.)

4. Nose Gear Shock Absorber
The nose gear shock absorber is housed in the sliding rod and is of the oleo-pneumatic type without separator between the hydraulic fluid (FHS) and the nitrogen. The shock absorber has an overall stroke of 450 mm (17.716 in.) (Ref. Fig. 006)
Hydraulic fluid replenishing and nitrogen charging are performed through a single servicing valve. (Ref. Fig. 007)
The shock absorber design and principle of operation are identical to that of the main gear shock absorber (Ref. 32-11-00, P. Block 1, paragraph 4). (Ref. Fig. 008)
(Ref. Fig. 009)

5. Steering Assembly (Ref. Fig. 010)
The nose gear leg is equipped with 2 identical actuating cylinders which serve to steer the aircraft on the ground.
- The cylinders are hydraulically controlled over a travel corresponding to a nose wheel steering angle of ± 65° by means of a steering control unit including an anti-shimmy system (Ref. 32-51-00, P. Block 1).
- The two double-acting actuating cylinders include a rack driven by pistons sliding in the cylinders. The rack is meshed with a pinion on the rotating tube which rotates in accordance with the hydraulic input.
- During towing the maximum steering angle without disconnection of the torque links is ± 95°.
- Operation is described in Chapter 32-51-00, P. Block 1, Paragraph 5.



Nose Gear - Shock Absorber - Simplified Drawing
Figure 006



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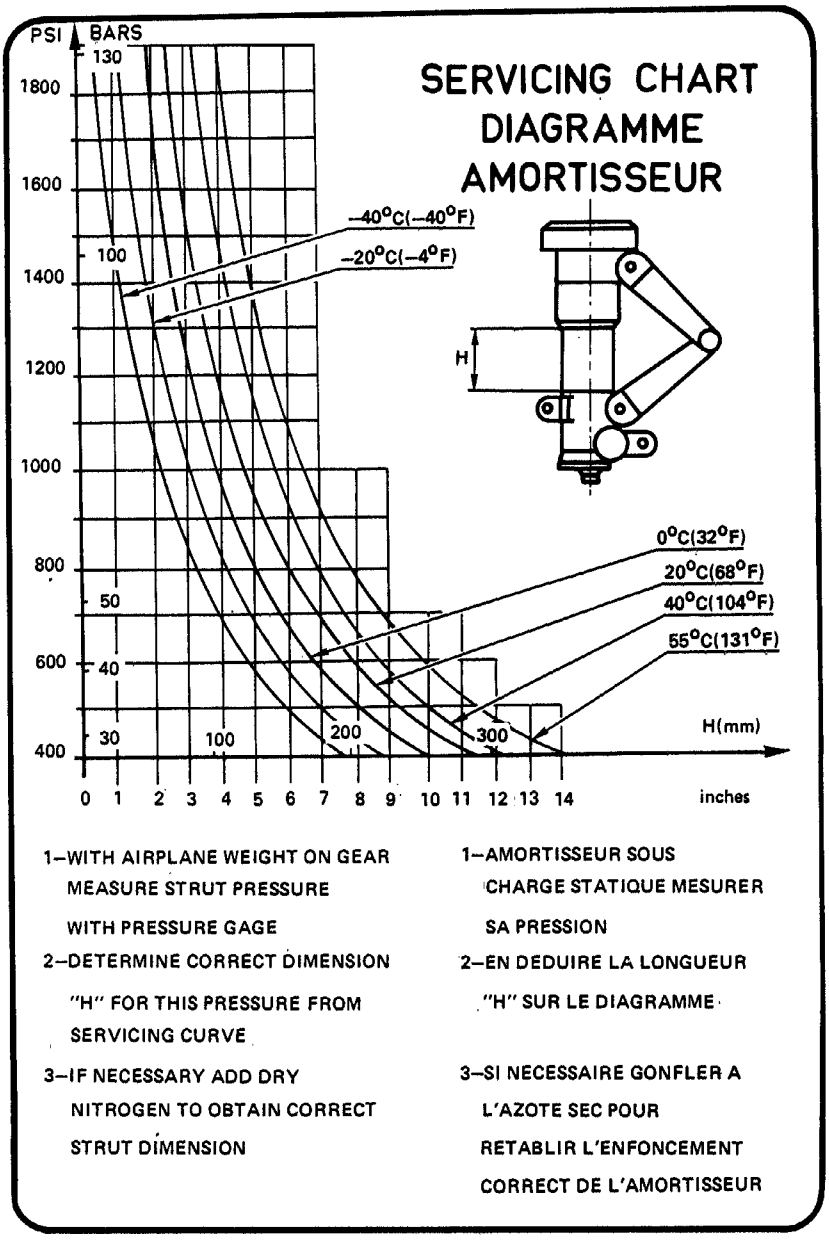
Nose Gear Shock Absorber - Schematic
Figure 007



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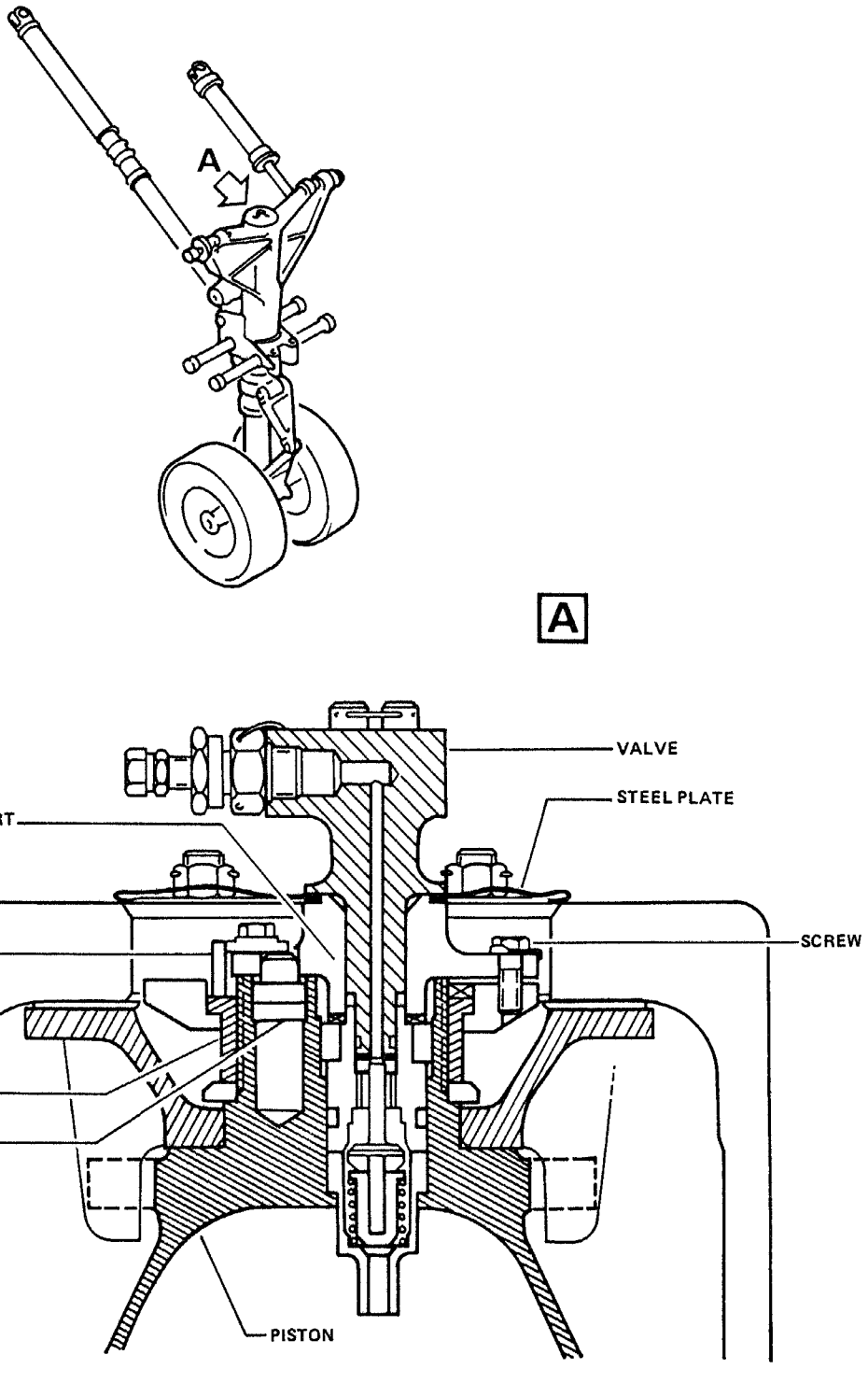
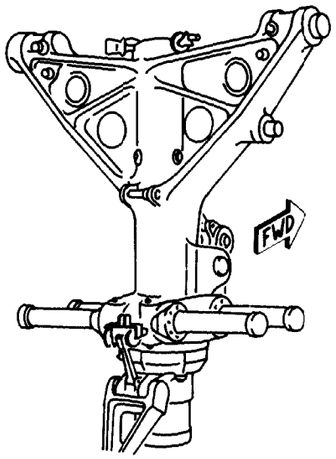
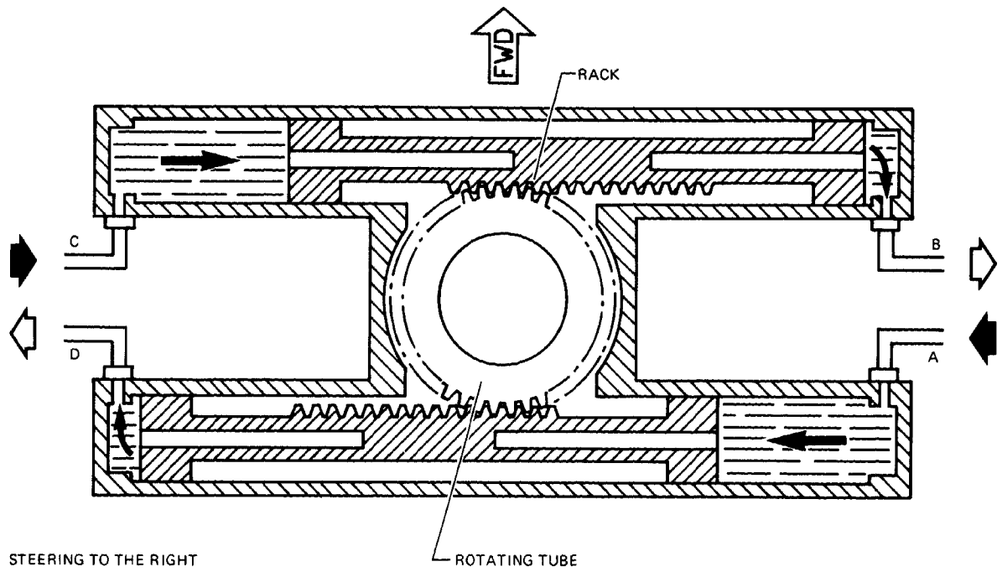
Nose Gear Shock Absorber - Charging Chart
Figure 008

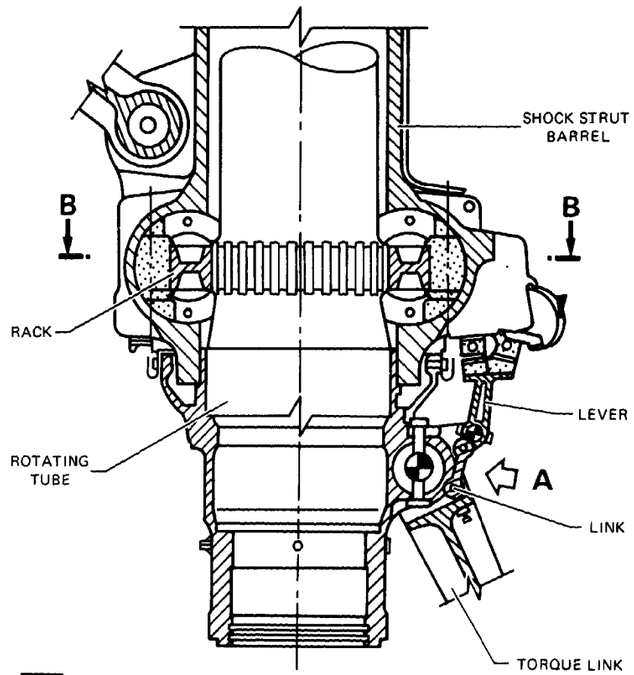


Nose Gear - Shock Absorber - Connections
Figure 009

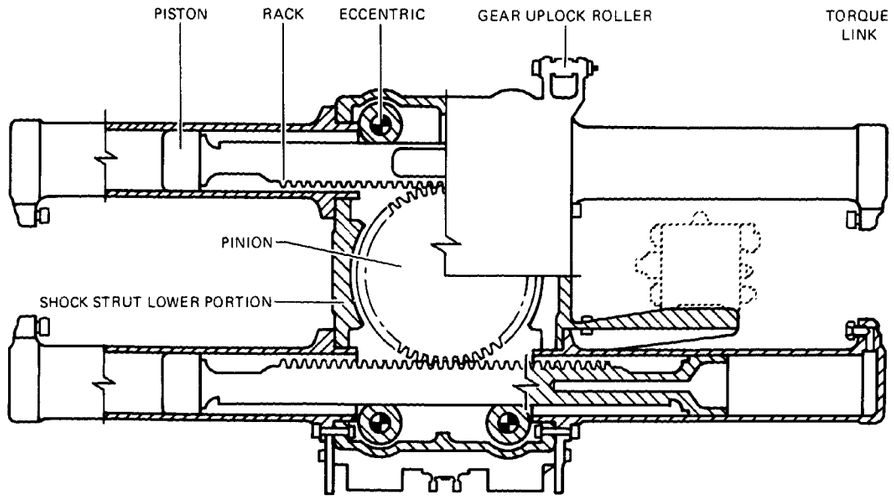


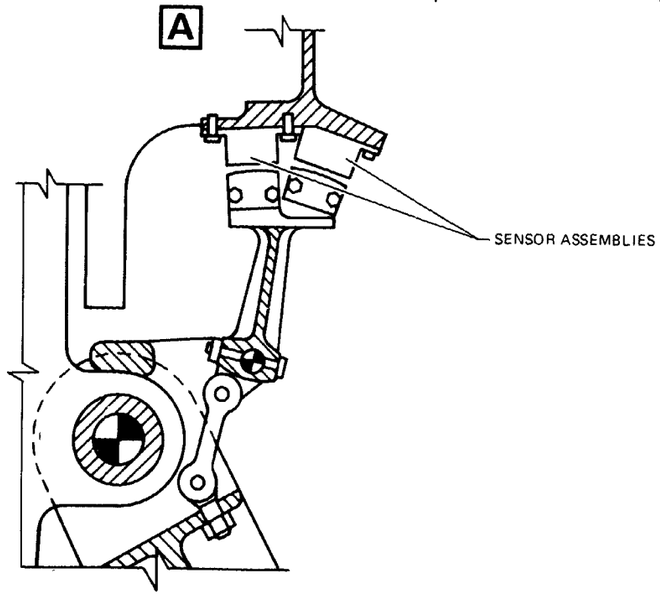


STEERING TO THE RIGHT



SECTION
B-B





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Steering Assembly
Figure 010

SECURING OF NOSE LANDING GEAR ON GROUND (NLG IS NOT LOCKED DOWN) - SERVICING

WARNING : TAKE ALL NECESSARY SAFETY PRECAUTIONS TO PREVENT INJURY TO PERSONNEL OR DAMAGE TO EQUIPMENT.

CAUTION : DO NOT MAKE KINKS IN THE ELECTRICAL HARNESSES OR PULL RELATED CABLES. THIS WILL PREVENT DAMAGE.

1. Reason for the Job

Securing of NLG on ground after landing with NLG not downlocked.

2. Equipment and Material

ITEM	DESIGNATION
A.	Safety Barriers
B.	Rope diameter 50 mm
C.	Wheel Chocks
D.	Warning Notices
E.	Passenger Stairs
F.C22783	Ground Safety Pin MLG
G.D22332000	Tool Towing, Lifting and Debogging Fitting
H.	Tensiometer - Cable
I.	Towing Tractor
J.98A0900100000	Towing Bar
K.	Strap or Cable
L.	Protection
Referenced Procedures	
- 09-11-00, P. Block 1	Towing
- 52-10-00, P. Block 1	Passenger Crew Door

3. Procedure

A. Job Set-Up

WARNING : OPERATORS MUST NOT BE UNDER NLG FUSELAGE TO INSTALL SAFETY BARRIERS.

(1) Position safety barriers prohibiting access to nose landing gear (NLG).

WARNING : OPERATORS MUST NOT BE UNDER FUSELAGE TO INSTALL NLG WHEEL CHOCK.

(2) Install wheel chock (2) in front of NLG wheels with rope (1) diameter 50 mm (1.97 in) (Ref. Fig. 301).

(3) Install wheel chock (3) behind main landing gear (MLG) wheels (Ref. Fig. 301).

(4) Install ground safety pin MLG C22783 (4) on main gear struts (Ref. Fig. 302).

(5) Position adjustable access passenger stairs for access at passenger crew door.

(6) Open passenger crew door (Ref. 52-10-00, P. Block 1).

(7) On panel 4VU :
Make certain that landing gear normal control lever is in DOWN position and prohibit its operation by displaying warning notice.

(8) On panel 9VU :
Place PARKING BRAKE control handle in on (applied) position and prohibit

its operation by displaying warning notice.

B. Securing of NLG

NOTE : There are two methods to secure not downlocked NLG.

(1)Securing of NLG with strap.

(a)Install tool towing, lifting and debogging fitting D22332000 (5) on MLG (Ref. Fig. 302).

(b)Install strap or cable (6) and protection (10) around structure (8) of NLG (Ref. Fig. 303).

(c)Attach strap or cable (6) at tool towing, lifting and debogging fitting D22332000 (5) of MLG (Ref. Fig. 303).

(d)Make sure that electrical harnesses (7) and (9) are not between strap or cable (6) and structure (8) of NLG (Ref. Fig. 303).

(e)Make sure with cable tensiometer that strap or cable (6) accept value of "1000daN" (2248.09 lbf) in acting on tensioner.

(f)Put mark (12) on rod of telescopic strut (11) at level of body (Ref. Fig. 304).

NOTE : This mark (12) permits to make sure that there are no movements of telescopic strut (11) during towing operation.

(g)Remove wheel chocks (3) from MLG wheels, wheel chocks (2) from NLG wheels, adjustable access passenger stairs and safety barriers.

(2)Securing of NLG without strap (alternative procedure in case of strap unavailability).

(a)Fit towing bar 98A0900100000.

CAUTION : USE ONLY SAFETY PINS DESIGNED FOR THIS AIRCRAFT.

(b)Connect towing tractor to towing bar 98A0900100000.

(c)Connect towing tractor with towing bar 98A0900100000 in front of NLG.

(d)PARKING BRAKE of towing tractor shall be put on.

C. Towing Operation

CAUTION : DO NOT TOW AIRCRAFT IF NLG IS NOT SECURED WITH STRAP OR CABLE. IF NLG IS NOT SECURED, DAMAGE TO AIRCRAFT CAN OCCUR.

(1)Make sure that there is nobody in cabin.

(2)If towing bar 98A0900100000 and towing tractor are connected to NLG :

(a)Disconnect towing tractor from towing bar 98A0900100000.

(b)Remove towing bar 98A0900100000 from NLG.

CAUTION : IN ORDER TO AVOID TOO HIGH LOADS ON NLG AND ON SECURING STRAPS OR CABLES, TOWING SHALL BE PERFORMED BY MLG.

(2)Tow aircraft (Ref. 09-11-00, P. Block 1) only when NLG is secured with strap or cable (6).

D. Close-Up

(1)Position safety barriers prohibiting access to NLG.

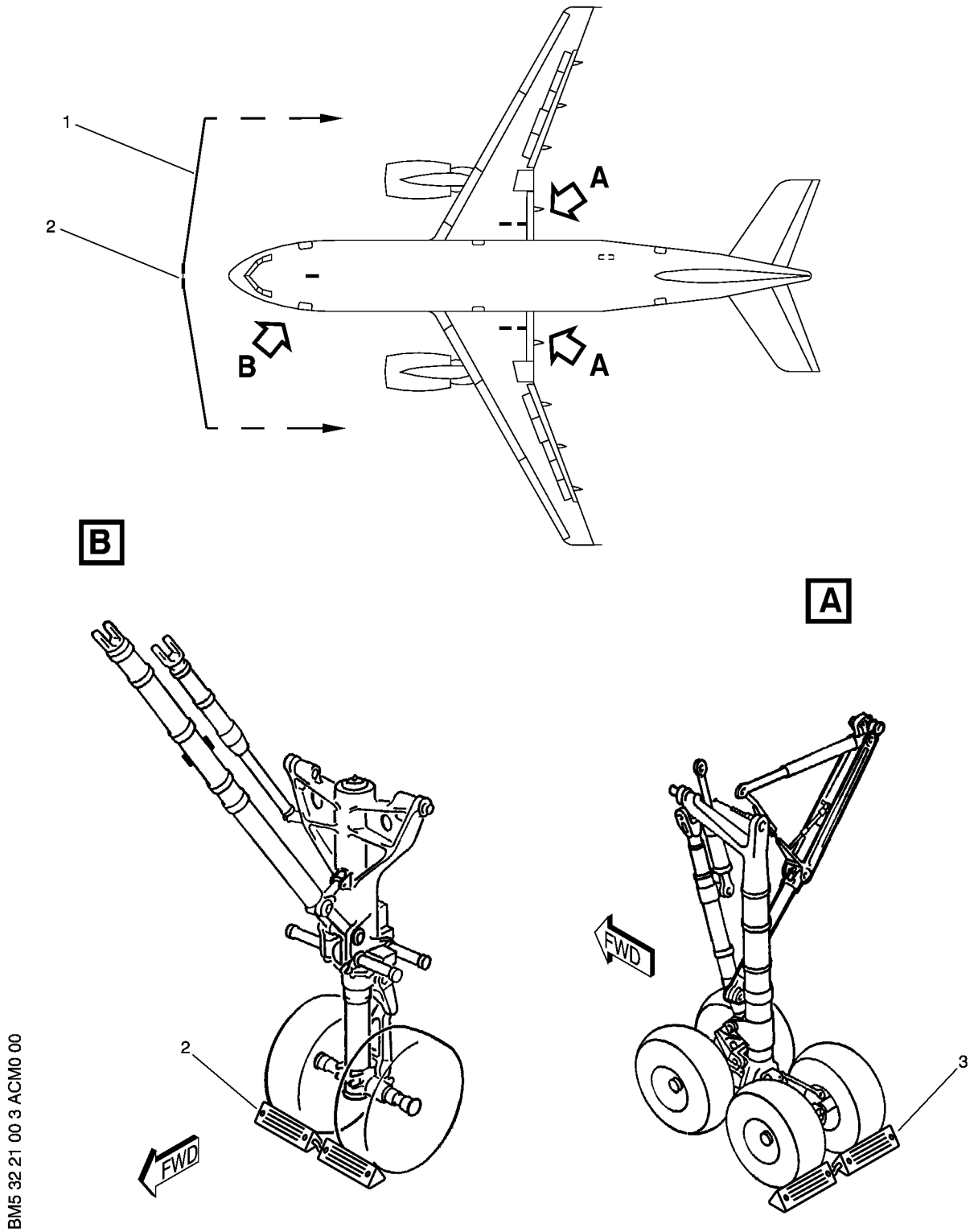
(2)Install wheel chock in front of NLG wheels and behind MLG wheels.

(3)Remove strap or cable (6) and protection (10) from MLG and NLG.

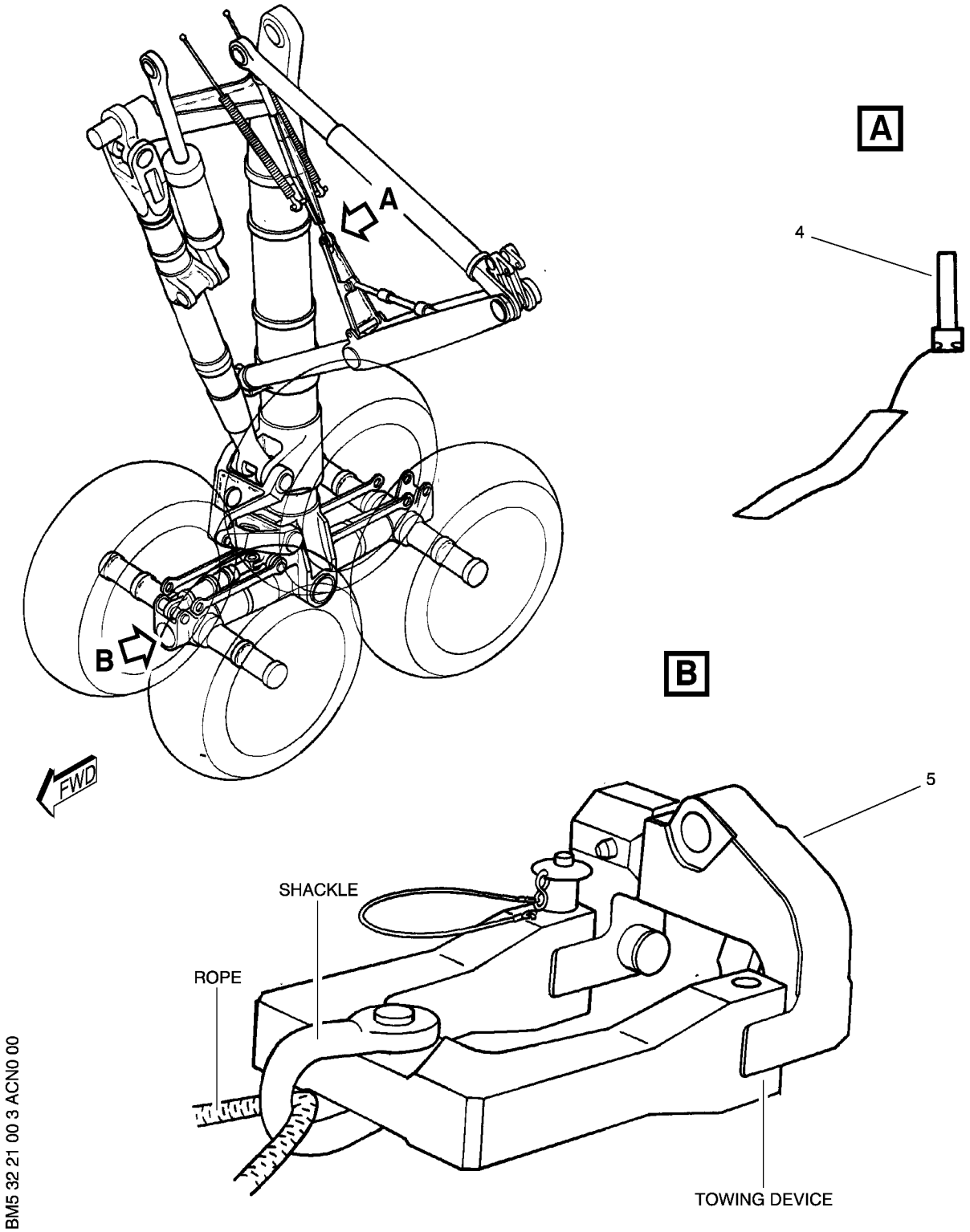
(4)Remove tool towing, lifting and debogging fitting D22332000 (5) from MLG.

(5)Make certain that electrical wiring is fully protected and check its condition.

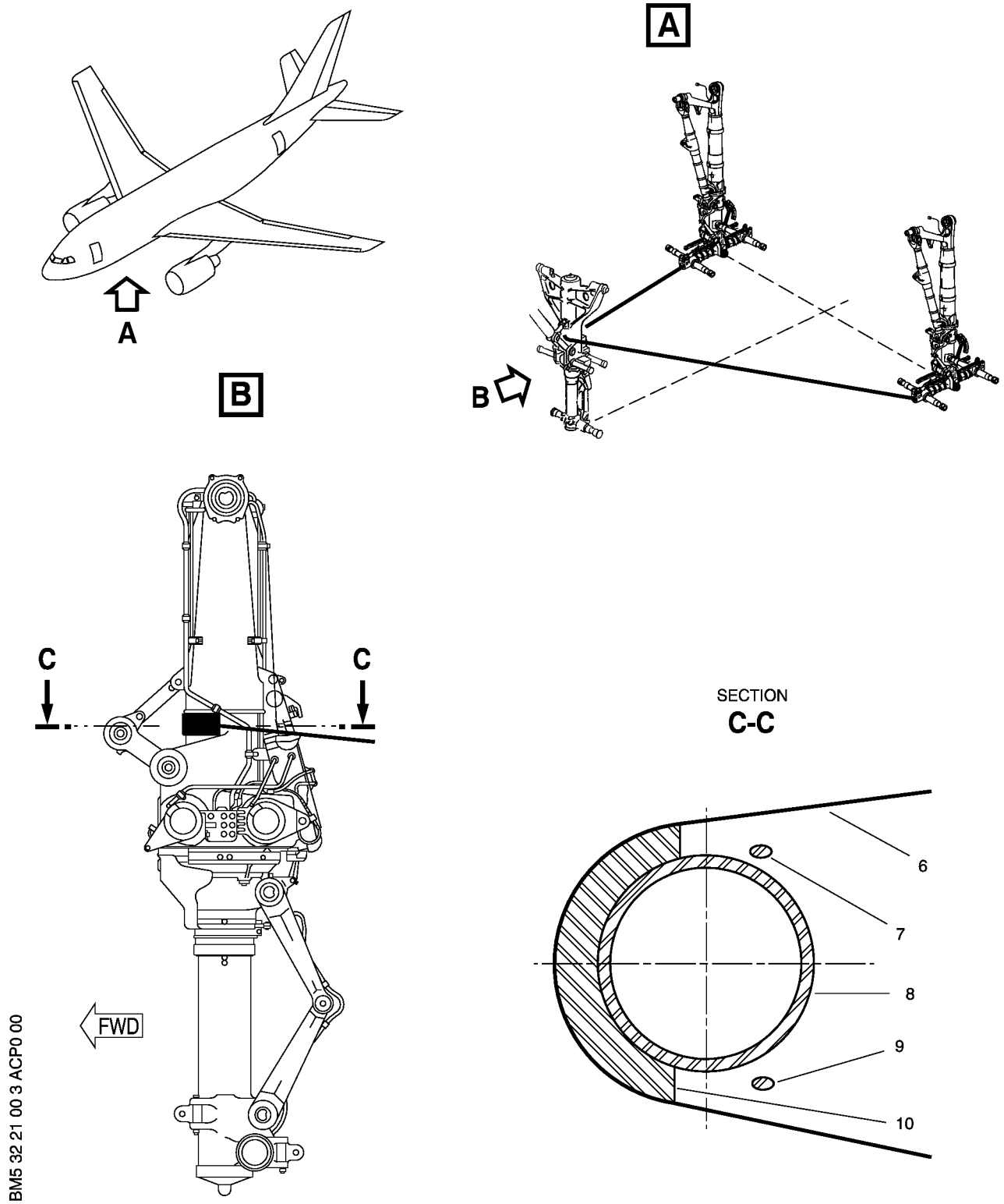
(6)Make certain that working area is clean and clear of tools.



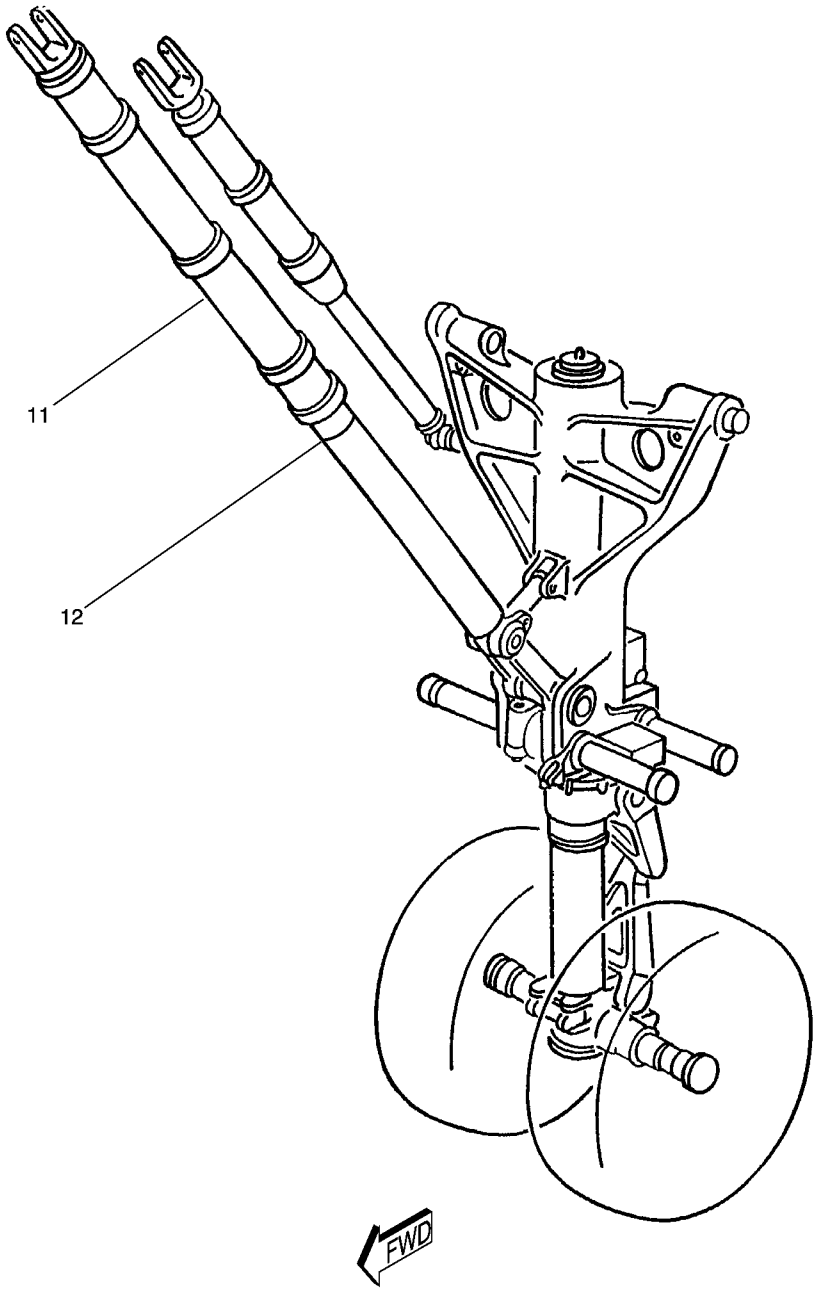
Wheel Chocks - Installation
Figure 301



Main Landing Gear - Safety Pins And Debogging Fitting
Figure 302



Landing Gear - Installation Strap
Figure 303



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Telescopic Rod - Mark
Figure 304

WARNING : CHECK THAT THE LANDING GEAR GROUND SAFETIES INCLUDING WHEEL CHOCKS ARE IN POSITION.

BEFORE APPLYING OR RELIEVING HYDRAULIC SYSTEM PRESSURE, MAKE CERTAIN THAT THE TRAVEL RANGES OF THE CONTROL SURFACES ARE CLEAR.

BEFORE PRESSURIZING HYDRAULIC SYSTEMS, CHECK THAT ALL CONTROLS ARE SET TO CORRESPOND WITH THE ACTUAL POSITION OF THE SERVICES THEY OPERATE.

BEFORE POWER IS SUPPLIED TO THE AIRCRAFT, MAKE CERTAIN THAT ELECTRICAL CIRCUITS UPON WHICH WORK IS IN PROGRESS ARE ISOLATED.

BEFORE PRESSURIZING HYDRAULIC SYSTEMS, MAKE CERTAIN THAT HYDRAULIC SYSTEM UNDER MAINTENANCE HAS BEEN ISOLATED.

1. Nose Gear Inspection

A. Reason for the Job
To check load required to downlock nose gear on the aircraft.
CONFIGURATION : Aircraft on jacks, lubrication operations performed.
NOTE : Except for inspections for which the aircraft is on jacks, the job can be carried out with only nose gear jacked up. In this case, it is necessary to use the main landing gear safety relay control simulator test set (860135953100001).

B. Equipment and Materials
(1)Aircraft Is On Jacks

ITEM	DESIGNATION
A.	Access Platform (2.60 m) (8 ft. 7 in.)
B.	Safety Barriers
C.	Hydraulic Fluid Container
D.	Warning Notice
E.	Hand Pump
F.	Load Measuring Equipment (Hemp or Nylon Rope, Dynamometer (Load : 200 daN (450 lbf)), Pulling Equipment (Pulley Block, Hoisting Block, Mini Winch)
Referenced Procedures	
- 07-11-00, P. Block 1	Jacking for Aircraft Maintenance Operations
- 12-12-29, P. Block 1	Hydraulics Replenishing
- 24-41-00, P. Block 301	AC External Power Control
- 29-14-00, P. Block 301	Hydraulic Reservoir Pressurizing System
- 29-21-00, P. Block 301	Green Auxiliary Power
- 32-12-11, P. Block 301	Main Gear Main Door - (Ground Door(s) Opening)
- 32-31-00, P. Block 501	Normal Extension and Retraction

(2)Nose Gear Only Is Jacked Up

	ITEM	DESIGNATION
	A.	Access Platform (2.60 m) (8 ft. 7 in.)
	B.	Safety Barriers
	C.	Hydraulic Fluid Container
	D.	Warning Notice
	E.	Hand Pump
	F.	Load Measuring Equipment (Hemp or Nylon Rope, Dynamometer (Load : 200 daN (450 lbf)), Pulling Equipment (Pulley Block, Hoisting Block, Mini Winch)
R	G. 860135953100001	Main Landing Gear Safety Relay Control
R		Simulator Test Set
	Referenced Procedures	
	- 07-11-00, P. Block 1	Jacking for Aircraft Maintenance Operations
	- 12-12-29, P. Block 1	Hydraulics Replenishing
	- 24-41-00, P. Block 301	AC External Power Control
	- 29-14-00, P. Block 301	Hydraulic Reservoir Pressurizing System
	- 29-21-00, P. Block 301	Green Auxiliary Power
	- 32-00-00, P. Block 501	Landing Gear
	- 32-12-11, P. Block 301	Main Gear Main Door - (Ground Door(s) Opening)
	- 32-22-11, P. Block 301	Nose Gear Main Door - (Ground Door(s) Opening)
	- 32-31-00, P. Block 501	Normal Extension and Retraction
	- 32-31-22, P. Block 401	Nose Gear - Actuating Cylinder
	- 32-31-24, P. Block 401	Nose Gear Telescopic Drag - Strut Assy

C. Procedure (Available Aircraft on Jacks or Nose Gear only Jacked up)

(1)Job set-up

(a)Jack up the aircraft, wheels clear of ground or lift aircraft at forward jacking point, main gear wheels on the ground (Ref. 07-11-00, P. Block 1).

(b)Energize the aircraft electrical network (Ref. 24-41-00, P. Block 301).

- Make certain that electronics racks ventilation is correct.

(c)On panel 4VU

- make certain that landing gear Normal control lever is in **DOWN** position.

(d)Between First Officer's and Third Occupant's seats

- make certain that landing gear Free Fall extension control handle is in Normal position.

(e)Position access platform.

(f)Position safety barriers prohibiting access to nose and main gear door travel ranges.

WARNING : MAKE CERTAIN THAT THE DOOR TRAVEL RANGES ARE CLEAR.

(g)Open nose and main gear doors by means of door ground opening control (Ref. 32-22-11, P. Block 301) and (Ref. 32-12-11, P. Block 301).

(h)Position safety collars on main and nose gear door actuating cylinders.

(j)Remove safety pin from nose gear telescopic drag strut.

WARNING : MAKE CERTAIN THAT GROUND SAFETIES ARE IN POSITION ON MAIN LANDING GEAR.

(2)Inspection

(Ref. Fig. 601, 602, 603)

(a)Measure load required to lock telescopic drag strut.

1 Aircraft Is On Jacks

- Pressurize Green hydraulic system by means of Green electric pumps (Ref. 29-21-00, P. Block 301).
- In flight compartment, on panel 4VU
  . place landing gear Normal control lever in UP position to achieve nose gear downlock release and beginning of nose gear retraction.

NOTE : Telescopic drag strut rod retraction of 200 mm (7.87 in.) is sufficient to perform inspection.

- When nose gear downlock release is indicated by red light in the flight compartment and mechanical indicator is no longer visible on drag strut, place landing gear Normal control lever in Neutral position.
- Depressurize Green hydraulic system (Ref. 29-21-00, P. Block 301) and prohibit its pressurization by displaying a warning notice
  . on Green hydraulic system ground connectors
  . on panel 429VU prohibiting start-up of APU.
- Depressurize Green hydraulic reservoir (Ref. 29-14-00, P. Block 301) and prohibit its pressurization by displaying a warning notice
  . on panel 429VU prohibiting start-up of APU
  . on hydraulic reservoir pressurization connector.
- Attach load measuring equipment to nose gear towing lug.
- Gradually apply load F until nose gear moves, then when it moves, keep it moving while noting load required to achieve nose gear downlock.

NOTE 1 : Downlock is indicated by nose gear green arrow light in flight compartment and mechanical indicator on telescopic drag strut F $\leq$ 110 daN (247 lbf.).

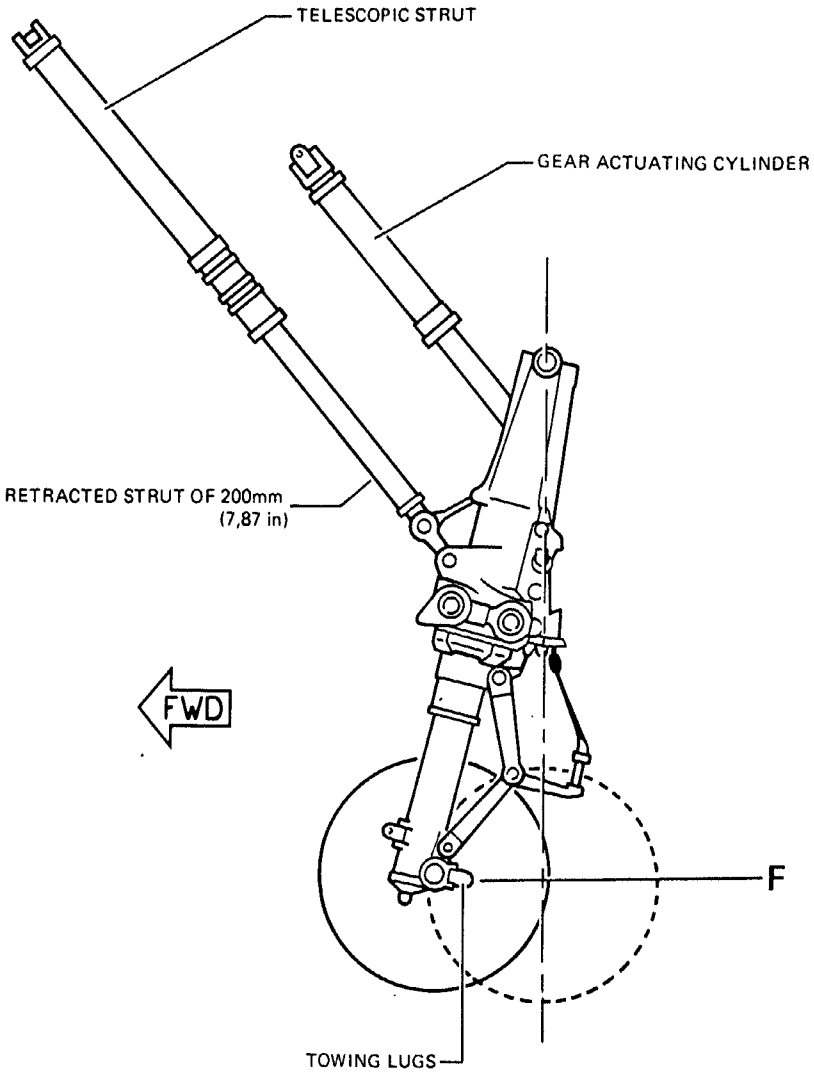
NOTE 2 : Sliding of the rod, from the time the movement starts to its locking, should be uninterrupted.

- If load F does not exceed specified limit, no further test is required.
- If load exceeds specified limit, continue test and note opposing load :
  . on telescopoic drag strut
  . on nose gear actuating cylinder and hinge points.

2 Nose Gear only Is Jacked Up

- Connect main landing gear safety relay control simulator test set (Ref. 32-00-00, P. Block 501).

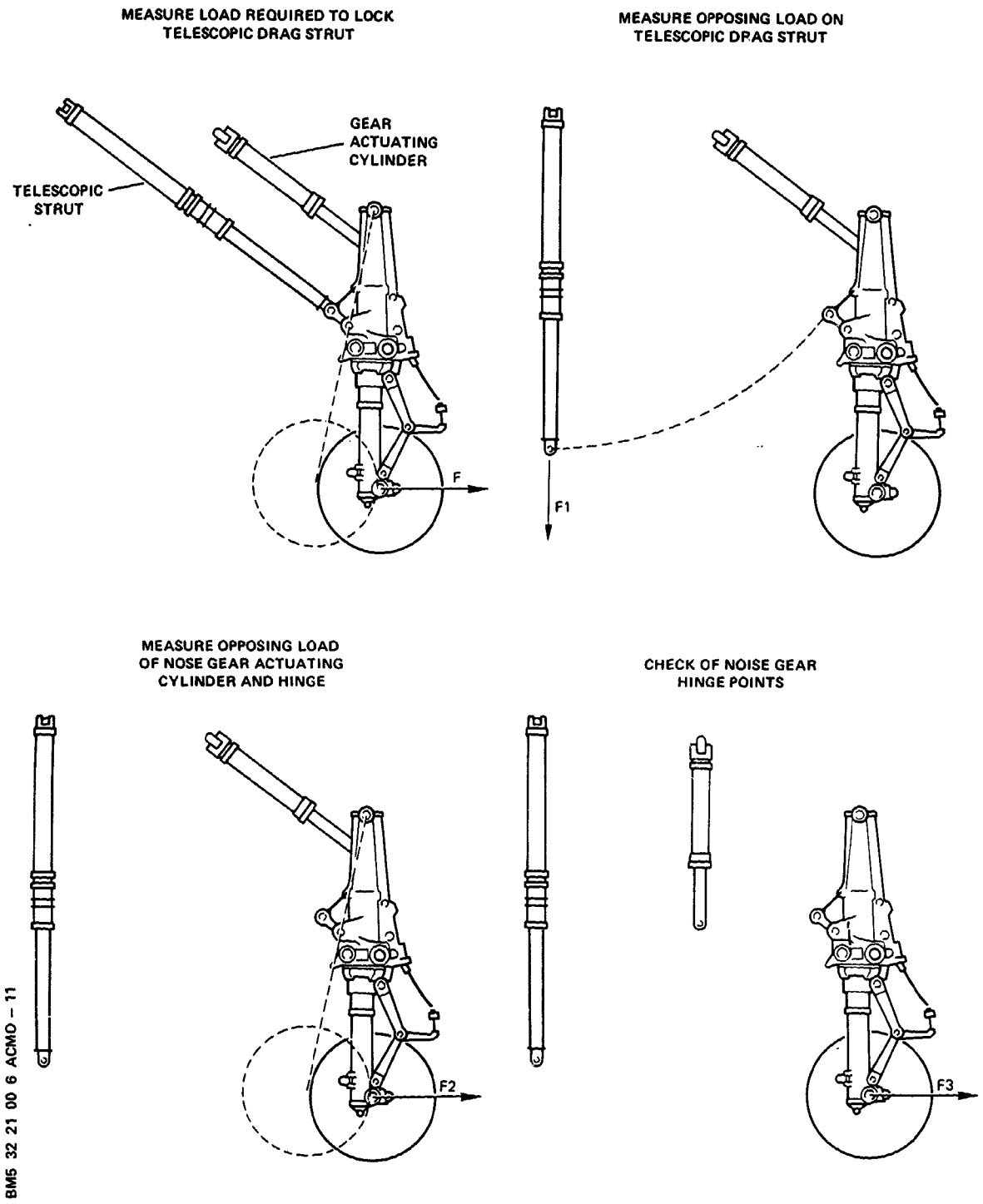
  On safety relay control simulator test set
  . Place SIMULATION FLIGHT/GROUND CONFIGURATIONS switches in GROUND position.
  . Place TEST/NORMAL switches (BOGIE BEAMS FLIGHT/GROUND switches) in NORMAL position (GROUND position).
  . Place SIMULATION/LANDING GEAR DOWNLOCKED switches in DOWNLOCKED position.



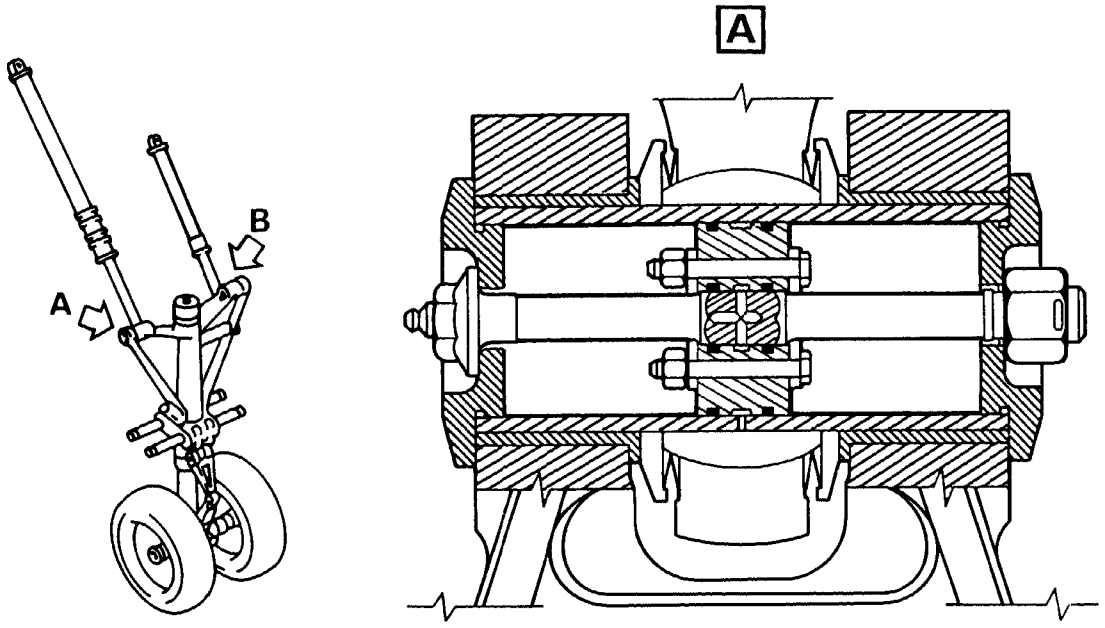
NOSE GEAR

BM5 32 21 00 6 AAMO – 09

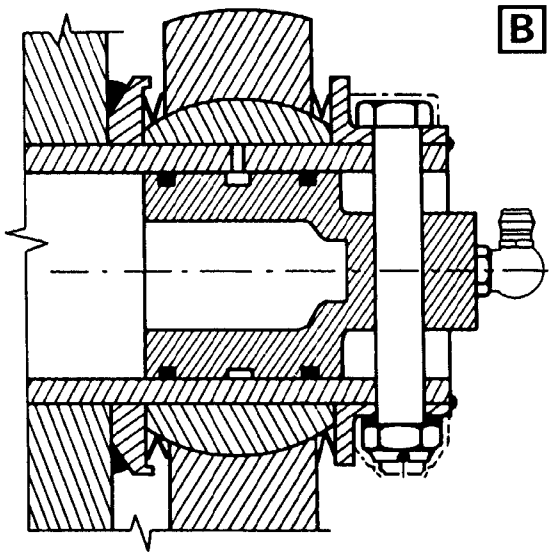
Nose Gear - Inspection Zone
Figure 601


MEASURE LOAD REQUIRED TO LOCK TELESCOPIC DRAG STRUT
GEAR ACTUATING CYLINDER
TELESCOPIC STRUT
F
MEASURE OPPOSING LOAD ON TELESCOPIC DRAG STRUT
F1
MEASURE OPPOSING LOAD OF NOSE GEAR ACTUATING CYLINDER AND HINGE
F2
CHECK OF NOISE GEAR HINGE POINTS
F3
BM5 32 21 00 6 ACMO - 11

Measurements
Figure 602



ATTACHMENT TO GEAR - TELESCOPIC STRUT



ATTACHMENT TO GEAR - ACTUATING CYLINDER

BM5 32 21 00 6 AEMO - 09

Actuating Cylinder and Telescopic Drag Strut Hinge Points
on Nose Gear
Figure 603

. Place FLIGHT/GROUND switch 3XG in GROUND position.
- Pressurize Green hydraulic system by means of Green electric pumps (Ref. 29-21-00, P. Block 301).
- On landing gear safety relay control simulator test set, place :
  . switch 8GA/9GA and switch 11GA/12GA in TEST position (FLIGHT position)
  . the 6 SIMULATION FLIGHT/GROUND CONFIGURATIONS switches in FLIGHT position.
- In flight compartment, on panel 4VU
  . place landing gear Normal control lever in UP position to achieve nose gear downlock release and beginning of nose gear retraction.

  NOTE : Telescopic drag strut rod retraction of 200 mm (7.87 in.) is sufficient to perform inspection.
- When nose gear downlock release is indicated by red light in the flight compartment and mechanical indicator is no longer visible on drag strut, place landing gear Normal control lever in Neutral position.
- Depressurize Green hydraulic system (Ref. 29-21-00, P. Block 301) and prohibit its pressurization by displaying a warning notice
  . on Green hydraulic system ground connectors
  . on panel 427VU to prohibit operation of Green electric pumps (ELEC PUMPS pushbutton switch).
- Depressurize Green hydraulic reservoir (Ref. 29-14-00, P. Block 301) and prohibit its pressurization by displaying a warning notice
  . on panel 429VU prohibiting start-up of APU.
  . on hydraulic reservoir pressurization connector.
- Attach load measuring equipment to nose gear towing lug.
- Gradually apply load F until nose gear moves, then when it moves, keep it moving while noting load required to achieve nose gear downlock.

  NOTE : Downlock is indicated by nose gear green arrow light in flight compartment and mechanical indicator on telescopic drag strut F $\leq$ 110 dan (247 lbf.).
- If load F does not exceed specified limit, no further test is required.
- If load exceeds specified limit, continue test and note opposing load :
  . on telescopic drag strut
  . on nose gear actuating cylinder and hinge points.

(b)Measure opposing load on telescopic drag strut.

1 Aircraft Is On Jacks
- Pressurize Green hydraulic reservoir (Ref. 29-14-00, P. Block 301) and Green hydraulic system (Ref. 29-21-00, P. Block 301).
- In flight compartment, on panel 4VU
  . place landing gear Normal control lever in UP position.

  NOTE : Telescopic drag strut rod retraction of 200 mm (7.87 in.) is sufficient to perform inspection.
- When nose gear downlock release is indicated by red light in flight compartment and mechanical indicator no longer visible on telescopic drag strut, place landing gear Normal control lever in Neutral position.

- Depressurize Green hydraulic system (Ref. 29-21-00, P. Block 301) and prohibit its pressurization by displaying a warning notice
  . on Green hydraulic system ground connectors
  . on panel 427VU to prohibit operation of Green electric pumps (ELEC PUMPS pushbutton switch).
- Depressurize Green hydraulic reservoir (Ref. 29-14-00, P. Block 301) and prohibit its pressurization by displaying a warning notice
  . on panel 429VU prohibiting start-up of APU
  . on hydraulic reservoir pressurization connector.
- Disconnect telescopic drag strut at its attachment on nose gear leg (Ref.32-31-24, P. Block 401).
- With telescopic drag strut hanging vertically, sliding rod extends under its own weight ; drag strut is in correct operating condition.
- If drag strut sliding rod fails to extend under its own weight, using load measuring equipment, measure load F1 required to move sliding rod :

NOTE : Load F1 is usually much lower than loads necessary to downlock the telescopic drag strut, which are not to be measured in the present test.
To measure correctly opposing load on drag strut and to avoid to take into account loads necessary to lock the strut, sliding of the rod must be stopped at a distance between 100 and 200 mm (3.94 and 7.87 in.) from the locked position.

  . If F1 < 35 daN (79 lbf), telescopic drag strut is in correct operating condition.
  . If 35 daN (79 lbf) < F1 < 80 daN (180 lbf), telescopic drag strut may remain in service but a new inspection shall be performed at next C check.
  . If F1 > 80 daN (180 lbf), telescopic drag strut shall be replaced IMMEDIATELY.

2 Nose Gear Only Is Jacked Up

- Connect main landing gear safety relay control simulator test set (Ref. 32-00-00, P. Block 501).
  On safety relay control simulator test set
  . Place SIMULATION FLIGHT/GROUND CONFIGURATIONS switches in GROUND position.
  . Place TEST/NORMAL switches (BOGIE BEAMS FLIGHT/GROUND switches) in NORMAL position (GROUND position).
  . Place SIMULATION/LANDING GEAR DOWNLOCKED switches in DOWNLOCKED position.
  . Place FLIGHT/GROUND switch 3XG in GROUND position.
- Pressurize Green hydraulic system by means of Green electric pumps (Ref. 29-21-00, P. Block 301).
- On landing gear safety relay control simulator test set, place :
  . switch 8GA/9GA and switch 11GA/12GA in TEST position (FLIGHT position)
  . the 6 SIMULATION FLIGHT/GROUND CONFIGURATIONS switches in FLIGHT position.
- In flight compartment, on panel 4VU
  . place landing gear Normal control lever in UP position to achieve

nose gear downlock release and beginning of nose gear retraction.

NOTE : Telescopic drag strut rod retraction of 200 mm (7.87 in.) is sufficient to perform inspection.

- When nose gear downlock release is indicated by red light in the flight compartment and mechanical indicator is no longer visible on drag strut, place landing gear Normal control lever in Neutral position.
- Depressurize Green hydraulic system (Ref. 29-21-00, P. Block 301) and prohibit its pressurization by displaying a warning notice
  . on Green hydraulic system ground connectors
  . on panel 427VU to prohibit operation of Green electric pumps (ELEC PUMPS pushbutton switch).
- Depressurize Green hydraulic reservoir (Ref. 29-14-00, P. Block 301) and prohibit its pressurization by displaying a warning notice
  . on panel 429VU prohibiting start-up of APU.
  . on hydraulic reservoir pressurization connector.
- Disconnect telescopic drag strut at its attachment on nose gear leg (Ref. 32-31-24, P. Block 401).
- With telescopic drag strut hanging vertically, sliding rod extends under its own weight ; drag strut is in correct operating condition.
- If drag strut sliding rod fails to extend under its own weight, using load measuring equipment, measure load F1 required to move sliding rod :

  NOTE : Load F1 is usually much lower than loads necessary to downlock the telescopic drag strut, which are not to be measured in the present test.
  To measure correctly opposing load on drag strut and to avoid to take into account loads necessary to lock the strut, sliding of the rod must be stopped at a distance of at least 100 mm (3.94 in.) from the locked position.

  . If F1 < 35 daN (73 lbf), telescopic drag strut is in correct operating condition.
  . If 35 daN (73 lbf) < F1 < 80 daN (180 lbf), telescopic drag strut may remain in service but a new inspection shall be performed at next C check.
  . If F1 > 80 daN (180 lbf), telescopic drag strut shall be replaced IMMEDIATELY.

(c)Measure opposing load on nose gear actuating cylinder and hinge points. (Aircraft is on jacks or nose gear only is jacked up).

NOTE : Telescopic drag strut disconnected and the landing gear is tilted at 5 to 10° angle.

1 Using load measuring equipment measure load F2 applied to towing lug.
- If F2 ≤ 15 daN (34 lbf) friction is within acceptable limits and no further test is required.
- If F2 > 15 daN (34 lbf) continue test by checking friction at actuating cylinder and nose gear hinge points.

(d)Check of nose gear hinge points (swing test) (aircraft is on jacks or nose gear only is jacked up).

NOTE : Telescopic drag strut disconnected.

1 Disconnect actuating cylinder at its attachment on nose gear leg (Ref. 32-31-22, P. Block 401).

2 Make certain that nose gear hinge points are correctly lubricated by moving nose gear to and fro.
3 Manually move nose gear approximately between 200 and 300 mm (7.87 and 10.92 in.) from vertical position.
4 Release nose gear ; nose gear returns to near vertical position.
5 If swing test is not correct again lubricate nose gear hinge point bearings and move nose gear to and fro several times.
6 If swing test is still not satisfactory, inspection of nose gear hinge points shall be scheduled.

(e)Check of opposing load at actuating cylinder (aircraft is on jacks or nose gear only is jacked up).

NOTE : Actuating cylinder disconnected.

1 Make certain that the aircraft hydraulic system is depressurized.
2 Position hydrualic fluid container.
3 Disconnect hydraulic lines from ports A (retraction) and B (extension).
4 Connect a hand pump to actuating cylinder ports A and B.
5 With actuating cylinder rod retracted, gradually supply actuating cylinder through port B and measure pressure required to extend sliding rod.
- If P ≤ 12 bars (174 psi), actuating cylinder may remain in service.
- If P > 12 bars (174 psi), replace actuating cylinder.
6 With actuating cylinder extended, gradually supply actuating cylinder through port A and measure pressure required to retract sliding rod.
- If P ≤ 2.2 bars (32 psi), actuating cylinder may remain in service.
- If P> 2.2 bars (32 psi), replace actuating cylinder.
7 Disconnect hand pump.
8 Connect hydraulic line to nose gear actuating cylinder.
9 Connect actuating cylinder to nose gear leg (Ref. 32-31-22, P. Block 401).
10 Connect telescopic drag strut to nose gear leg (Ref. 32-31-24, P. Block 401).

(3)Test

Carry out a nose gear Normal extension and retraction functional test (2 or 3 cycles) (Ref. 32-31-00, P. Block 501).

(4)Close-up

(a)Aircraft Is On Jacks

1 Install safety pin in nose gear telescopic drag strut.
2 Top up Green hydraulic reservoir as required (Ref. 12-12-29, P. Block 1).
3 Make certain that working area is clean and clear of tools and miscellaneous items of equipment.
4 Close landing gear doors (Ref. 32-22-11, P. Block 301).
5 Remove warning notices.
6 Lower the aircraft onto its wheels (Ref. 07-11-00, P. Block 1).
7 Remove access platform and safety barriers.
8 Remove all ground handling and maintenance equipment standard and special tools, together with ground power and replenishing equipment, all access equipment and miscellaneous items. De-energize the aircraft electrical network (Ref. 24-41-00, P. Block 301).

(b)Nose Gear Only Is Jacked Up

1 Disconnect landing gear safety relay control simulator test set (Ref. 32-00-00, P. Block 501).
2 Install safety pin in nose gear telescopic drag strut.
3 Top up Green hydraulic reservoir as required (Ref. 12-12-29, P. Block 1).
4 Make certain that working area is clean and clear of tools and miscellaneous items of equipment.
5 Close landing gear doors (Ref. 32-22-11, P. Block 301).
6 Remove warning notices.
7 Lower the aircraft onto its wheels (Ref. 07-11-00, P. Block 1).
8 Remove access platform and safety barriers.
9 Remove all ground handling and maintenance equipment standard and special tools, together with ground power and replenishing equipment, all access equipment and miscellaneous items. De-energize the aircraft electrical network (Ref. 24-41-00, P. Block 301).

2. Check of Tightening Torque of Shock Absorber to Shock Strut Fasteners

WARNING : CHECK THAT THE LANDING GEAR GROUND SAFETIES INCLUDING WHEEL CHOCKS ARE IN POSITION.

A. Reason for the Job

To check tightening torque of shock absorber-to-shock strut fasteners.

B. Equipment and Materials

ITEM	DESIGNATION
A.	Access Platform (2.60m) (8ft.7in.)
B.	Safety Barriers
C.	Warning Notice
D. Material No. 09-001	Sealants (Ref. 20-31-00)
Referenced Procedure	
- 32-22-11, P. Block 301	Nose Gear Main Door (Ground Door(s) Opening)

C. Procedure

(1)Job set-up

(a)On panel 4VU

- make certain that landing gear normal control lever is in Down position.

(b)Between First Officer's and Third Occupant seats

- make certain that landing gear Free Fall extension control handle is in Normal position.

(c)Position access platform

(d)Position safety barriers prohibiting access to nose gear door travel ranges.

WARNING : MAKE CERTAIN THAT THE DOOR TRAVEL RANGES ARE CLEAR.

(e)Open nose gear door by means of door ground opening control (Ref. 32-22-11, P. Block 301).

(f)Position safety collars on nose gear door actuating cylinders.

WARNING : MAKE CERTAIN THAT SAFETY PIN IS IN POSITION ON NOSE LANDING GEAR.

(2)Operations to be performed on nuts and bolts attaching shock absorber rod stop to shock strut.

R **ON A/C 001-003,

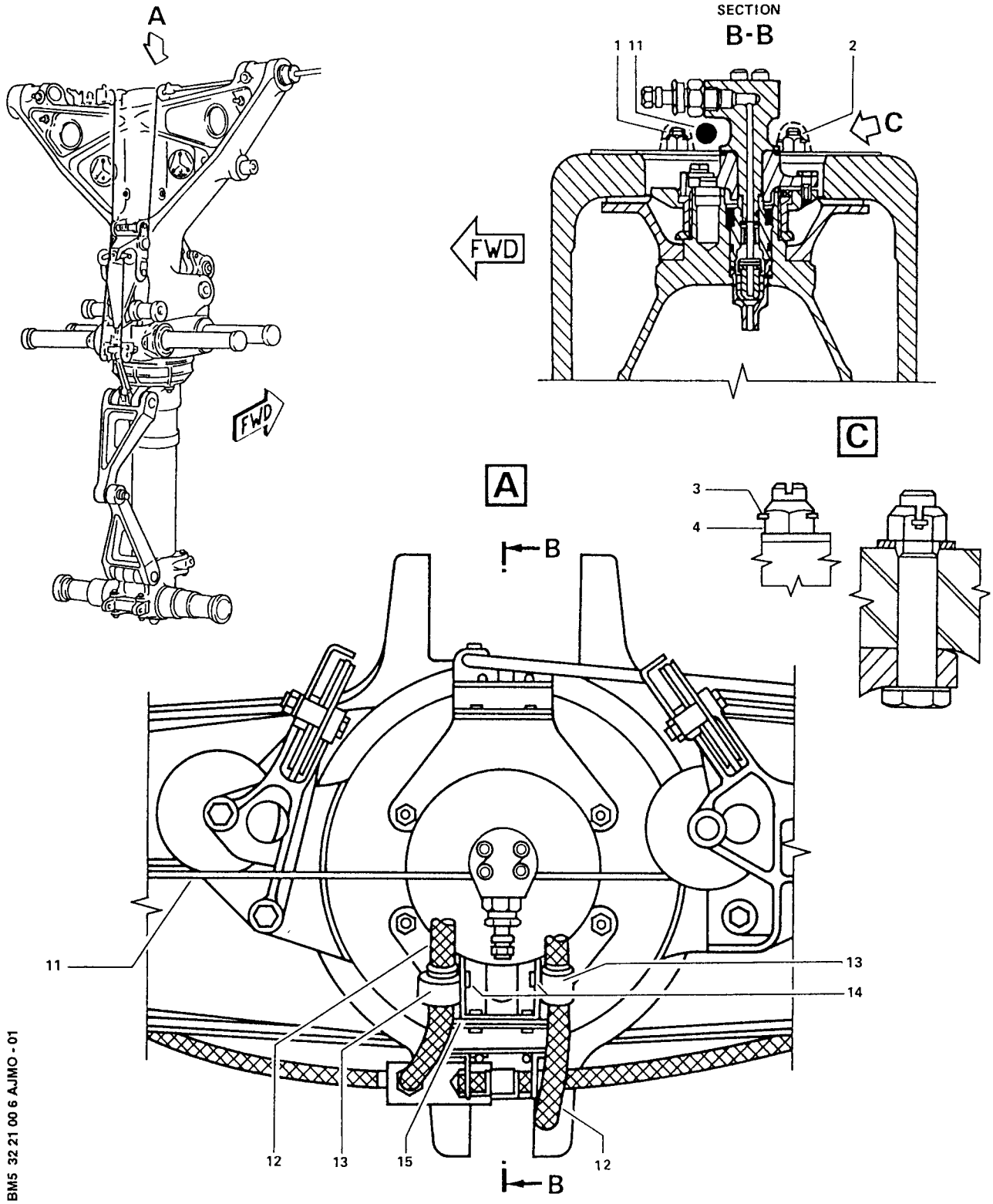
(Ref. Fig. 604)

R **ON A/C ALL

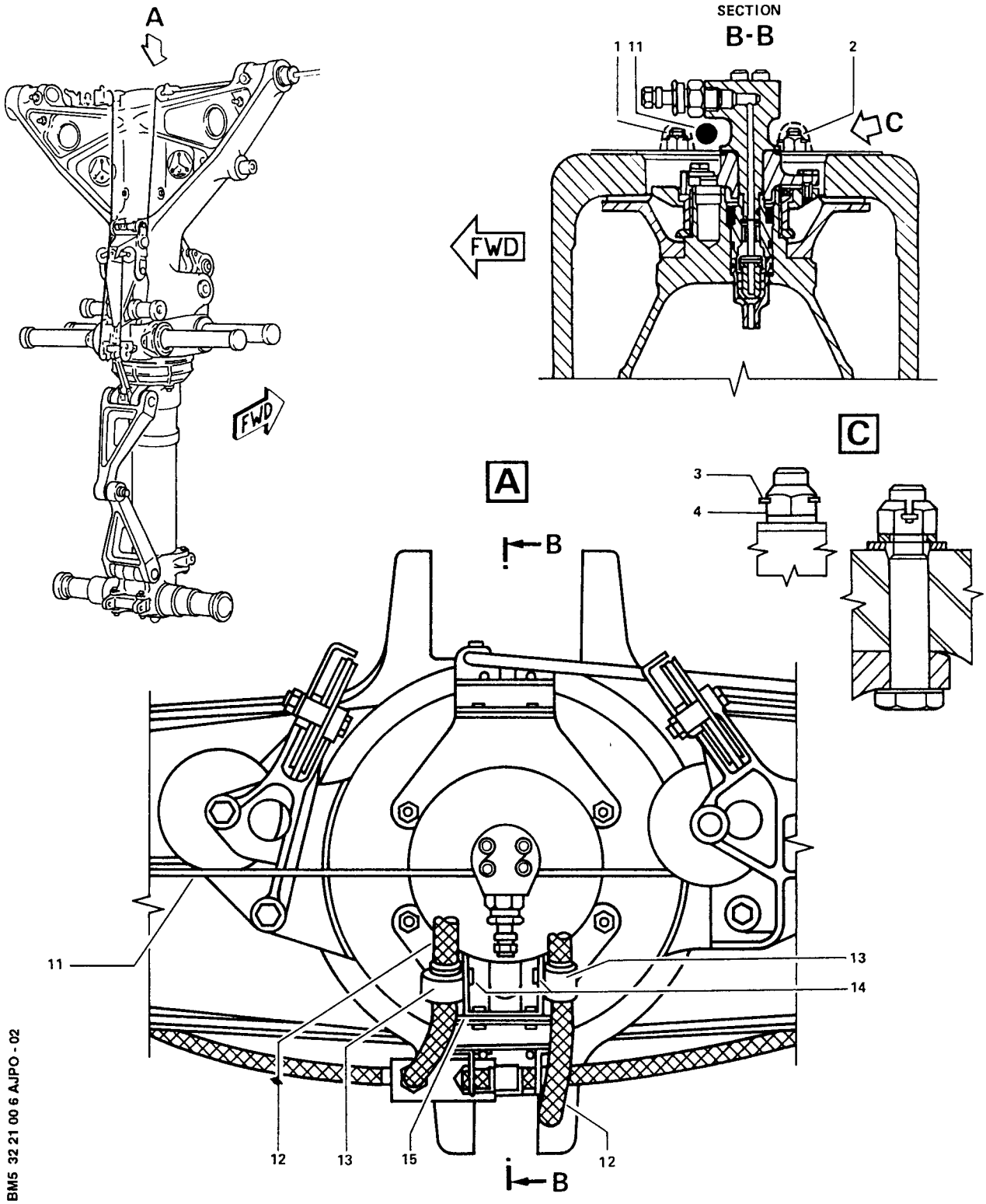
R Post SB 32-2062 For A/C 001-003,

(Ref. Fig. 605)

R **ON A/C ALL



TORQUE of Shock Absorber to Shock Strut Fasteners
(4 Fasteners)
Figure 604



TORQUE of Shock Absorber to Shock Strut Fasteners
(4 Fasteners)
Figure 605

(a)Check of NLG installation with 4 fasteners

1 Remove rubber coating (2) from the 4 fasteners (1).

2 Remove the 4 cotter pins (3).

WARNING : NEVER REMOVE THE 4 NUTS.

3 Check that the torque value is between 3 and 4.5 m.daN (22.1 and 33.2 lbf.ft).

4 If the torque value is between 3 and 4.5 m.daN (22.1 and 33.2 lbf.ft).
- Safety nuts (4) with a new cotter pin (3).
- Smear nuts (4) with Material No. 09-001.

5 If the torque value is less than 3 m.daN (22.1 lbf.ft).
- TORQUE each of the 4 nuts to between 3 and 4.5 m.daN (22.1 and 33.2 lbf.ft).
- Safety nuts (4) with a new cotter pin (3).
- Smear nuts (4) with Material No. 09-001.

6 If required torque value cannot be applied due to bolt rotating, proceed as follows :
- if necessary remove the following parts to improve access to bolts concerned :
  . the 2 screw/washer assemblies (14) and the 2 clamps (13)
  . move hoses (12) to remove support assembly (15).
- Cut a 2.5 mm (0.098 in.) deep and 1.5 mm (0.059 in.) wide slot (sawcut) (see detail C) at end of rotating bolt. Make sure that this slot is correctly centered, perpendicular to cotter pin hole.
  NOTE : Take care not to damage adjacent parts, in particular, nose wheel steering control cable (11).

7 Tighten nut using slot to immobilize rotating bolt. TORQUE to required value and safety with a new cotter pin (3).
If it is not possible to install cotter pin, continue to tighten until the next slot of the nut coincides with the bolt hole. The torque value must not exceed 4.5 mdaN (33.2 lbf.ft). Then lock the nut (4).
NOTE : If it is not possible try with a new nut.

8 If it is not possible to correctly apply the required torque value on one bolt only refer to SB Messier-Dowty 470-32-805.

9 If more than one bolt cannot be torqued, replace all bolts and refer to SB Messier-Dowty 470-32-805.

10 Coat slots and areas where protective finish has been damaged with primer.

11 Smear nuts (4) with Material No. 09-001.

12 If support assembly (15) and hoses (12) have been removed
. install support assembly (15)
. install hoses (12) and attach with the 2 clamps (13) and the 2 screw/washer assemblies (14).

R **ON A/C 104-104,

R Post SB 32-2132 For A/C 104-104,

(a)Not applicable

R **ON A/C ALL

(3)Close-up
(a)Make certain that working area is clean and clear of tools and miscellaneous items of equipment.
(b)Close nose landing gear doors (Ref. 32-22-11, P. Block 301).
(c)Remove warning notices.
(d)Remove access platform and safety barriers.

3. Nose Landing Lower Area Barrel Inspection

A. Reason for the Job
(1)Ultrasonic inspection of nose landing gear leg barrel, in the torque tube stop-to-barrel attachment area, in order to make certain that no cracks are present.

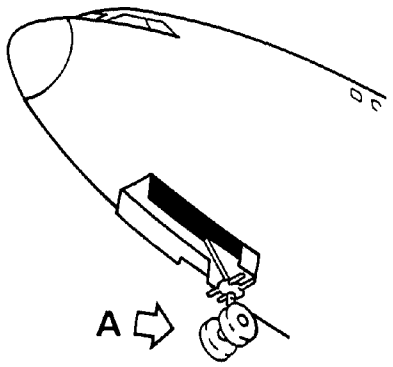
B. Equipment and Material

ITEM	DESIGNATION
A. Material No. 09-001	Sealants (Ref. 20-31-00)
B. C22971	Jack adaptor
Referenced Procedures	
- 07-11-00, P. Block 1	Jacking for Aircraft Maintenance Operations
- 07-12-00, P. Block 1	Jacking for Wheel Change
- 12-37-32, P. Block 1	Wheel Replacement
- 29-10-00, P. Block 301	Main Hydraulic Power - Pressurization/Depressurization
- 32-51-00, P. Block 901	Steering

C. Job Set-Up
(Ref. Fig. 606, 607)
NOTE : - The ultrasonic inspection may be carried out with aircraft on its wheels or on jacks.
- The following instructions are to be applied with aircraft on its wheels.
For the case where aircraft is jacked up (Ref. 07-11-00, P. Block 1), compress shock absorber by 150/200 mm (5.90 - 7.87 in.) before rotating twin-whell unit to ensure that wheel centering cams are totally disengaged.
WARNING : MAKE CERTAIN THAT WHEEL CHOCKS ARE IN POSITION.
WARNING : MAKE CERTAIN THAT DOOR TRAVEL RANGES ARE CLEAR.
WARNING : MAKE CERTAIN THAT SAFETY PIN IS IN POSITION ON NOSE LANDING GEAR.
(1)Make certain that parking brake is applied and MLG wheels are stopped by blocks.
(2)Open, safety and tag the following circuits breakers.

PANEL	SERVICE	IDENT.	LOCATION
133VU	HYDRAULIC/NOSE WHEEL STRG	1GC	333/T53

(3)Bring a jack from rear of landing gear.



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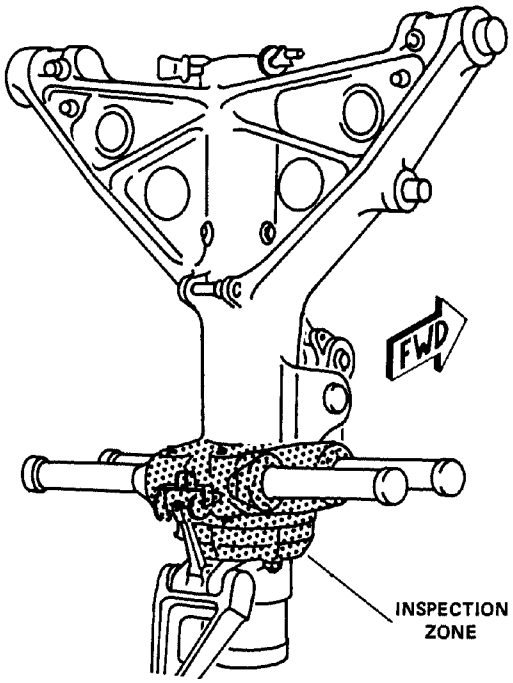

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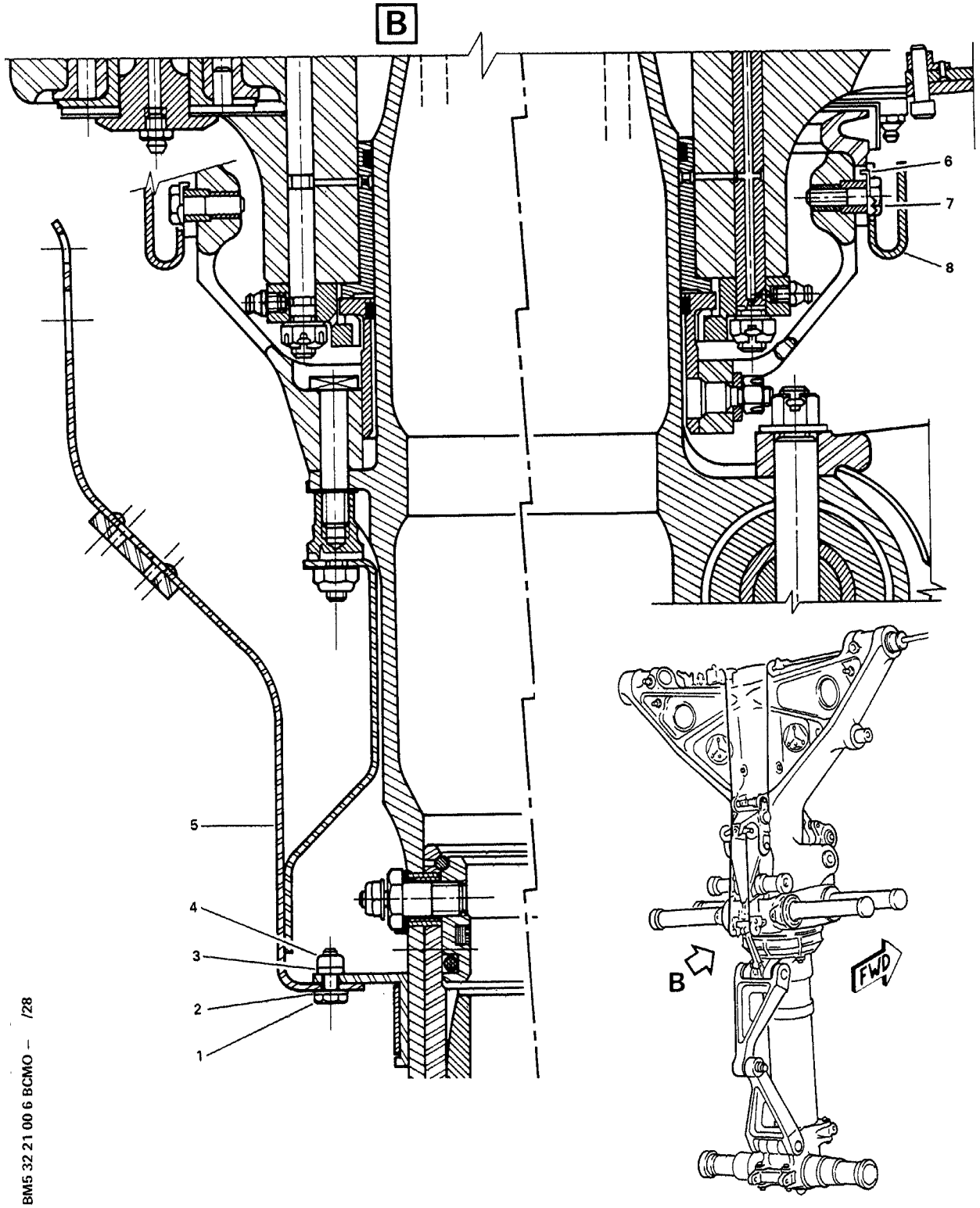
Nose Landing Gear Leg Barrel - Inspection Zone
Figure 606



Nose Landing Gear Leg Barrel - Inspection Zone (Details)
Figure 607

(4)Lift twin-wheel with jack to clear wheels from ground (Ref. 07-12-00, P. Block 1).
(5)Two cases may be present :
- Remove the two wheels (Ref. 12-37-32, P. Block 1) if twin-wheel unit cannot be rotated with jack.
- Do not remove the wheels if twin-wheel unit can be rotated with jack over a ± 50° angle.

(6)Depressurize Green hydraulic system (Ref. 29-10-00, P. Block 301) and prohibit its pressurization by displaying a warning notice :
- on Green hydraulic system ground connectors
- on panel 427VU to prohibit operation of Green electric pumps (ELEC PUMPS pushbutton switch).

(7)Deactivate steering control by pinning lever of electrical box or interphone box (Ref. 32-51-00, P. Block 901).
(8)Removal of components (Ref. Fig. 607)
(a)Remove 3 bolts (1) and 3 washers (2).
(b)Remove cover assy (5).
(c)Remove 2 washers (3) and 2 nuts (4).
(d)Remove 4 bolts (7) and 4 washers (6).
(e)Remove 2 indexes (8).
NOTE : - This removal is possible only if attachment bolts of index are hexagonal socket bolts.
- Nonetheless, if such removal is not possible, an ultrasonic inspection may be carried out.

(9)Install a tow bar at suitable location at front or rear of twin-wheel unit.

D. Procedure
Ultrasonic inspection in torque tube stop-to-barrel attachment area (Ref. Service Bulletin A310 32-2040 and Messier Hispano Bugatti 470-32-641).

E. Installation of removed parts. (Ref. Fig. 607)
(1)Install 2 indexes (8).
(2)Install 4 washers (6) and 4 bolts (7).
(3)Install 2 washers (3) and 2 nuts (4).
(4)Install cover assy (5).
(5)Install 3 washers (2) and 3 bolts (1).
(6)Protect surface with Material No. 09-001 in the removal area.

F. Close-Up
(1)Install wheels, if these have been removed (Ref. 12-37-32, P. Block 1).
(2)Remove pin from electrical box or interphone box (Ref. 32-51-00, P. Block 901).
(3)Remove jack (Ref. 07-12-00, P. Block 1).
(4)Remove tow bar.
(5)Remove safety clips and tags and close circuit breaker 1GC.

1. Lubrication of the Shock Strut, Aircraft Jacked-Up

A. Reason for the Job
Lubrication of inner part of shock strut to eliminate creaking noise.
NOTE : The noises do not endanger safety. If the aicraft ground time or lack of equipment does not permit lubrication of the inner part of the nose gear shock strut, carry out the lubrication at the next convenient opportunity.

B. Equipment and Materials

	ITEM	DESIGNATION
R	(1)Material No. 02-001	Hydraulic Fluids (Ref. 20-31-00)
	or	
R	Material No. 02-004	Hydraulic Fluids (Ref. 20-31-00)
R	or	
R	Material No. 02-006	Hydraulic Fluids (Ref. 20-31-00)

Referenced Procedures

- 07-11-00, P. Block 1	Lifting and Jacking
- 32-21-14, P. Block 401	Nose Gear Shock Absorber
- 32-21-15, P. Block 401	Torque Links - Nose Gear

C. Job Set-Up
NOTE : These procedures are applicable only to the aircraft in which creaking noises have been heard.
(1)Jack the nose of the aircraft until NLG wheels are 4 inches (100 mm) off the ground (Ref. 07-11-00, P. Block 1).
(2)Position a hydraulic jack under the NLG shock absorber.
(3)Disconnect the NLG torque links at the center pin (Ref. 32-21-15, P. Block 401).
(4)Remove the inflation valve block from the shock absorber (Ref. 32-21-14, P. Block 401).
(5)Disconnect the NLG shock absorber from the barrel, and let it slide downwards by 70 mm max. (2.756 in.) using the jack (Ref. 32-21-14, P. Block 401).
NOTE : Make certain that the electrical loom does not impede the movement of the shock absorber. Remove a few clips, if necessary.

D. Procedure
(1)Pour half a liter of hydraulic fluid (Material No. 02-001 or No. 02-004
R or No. 02-006) through the upper orifice of the leg on the internal wall, of the barrel by means of a syringe so that fluid runs down to the airflon-coated ring.
(2)Rotate the nose wheels if possible (Rotation of the shock absorber ± 45 degrees).
(3)Hold the leg in this position for one hour.

NOTE : Noises should disappear within a few flights, otherwise repeat the operation.

NOTE : Further to this maintenance action, oil leakage may appear during the next flights.

(Ref. Fig. 801)

E. Close-Up

(1)Connect the NLG shock absorber to the barrel using the hydraulic jack (Ref. 32-21-14, P. Block 401).

(2)Connect the NLG torque links (Ref. 32-21-15, P. Block 401).

(3)Connect the inflation valve block to the shock absorber (Ref. 32-21-14, P. Block 401).

(4)Remove the hydraulic jack and lower the NLG to the ground (Ref. 07-11-00, P. Block 1).

2. Lubrication of Shock Strut, Aircraft on Wheels (After SB Messier-Dowty 470-32-803)

A. Reason for the Job

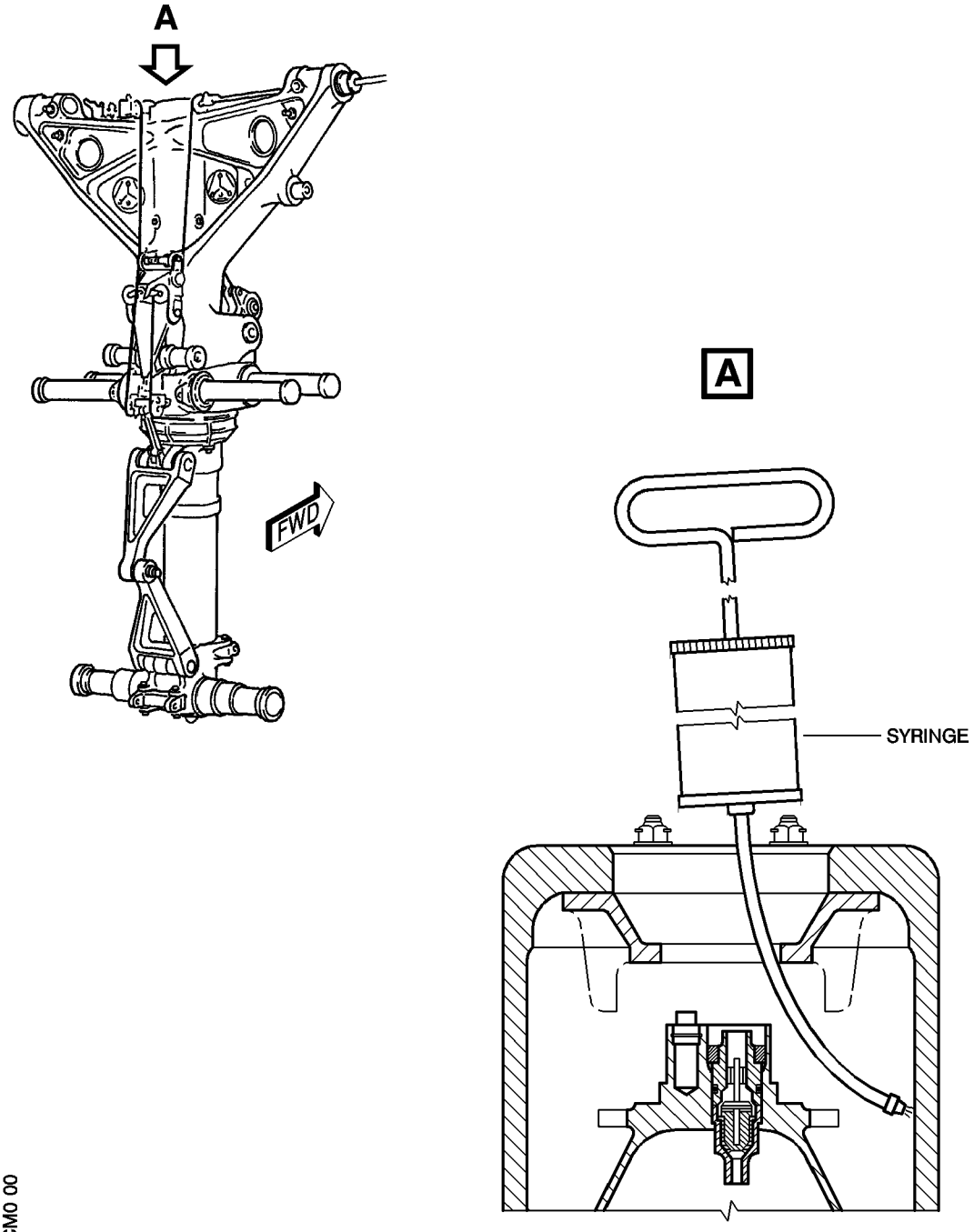
Lubrication of inner part of shock strut to eliminate creaking noise.

NOTE : The noises do not endanger safety. If the aicraft ground time or lack of equipment does not permit lubrication of the inner part of the nose gear shock strut, carry out the lubrication at the next convenient opportunity.

B. Equipment and Materials

	ITEM	DESIGNATION
	(1)	Square Steel Plate 1.2 m (4 ft.)
	(2)	Cart - Ground Power Supply and Preliminary Testing 150 l/min. (39.6 US GPM) Hydraulic
	(3)	Safety Barriers
	(4)	Circuit Breaker Safety Clips
	(5)	Cotter Pin
R	(6)Material No. 02-001	Hydraulic Fluid (Ref. 20-31-00)
	or	
R	(7)Material No. 02-004	Hydraulic Fluid (Ref. 20-31-00)
R	or	
R	Material No. 02-006	Hydraulic Fluids (Ref. 20-31-00)
	(8)Material No. 04-027	Common Grease (Ref. 20-31-00)
	(9)Material No. 09-008F	Sealant (Ref. 20-31-00)
	Referenced Procedures	
	- 09-11-00, P. Block 1	Towing
	- 24-41-00, P. Block 301	AC External Power Control
	- 29-10-00, P. Block 301	Main Hydraulic Power - Pressurization/ Depressurization
	- 29-21-00, P. Block 301	Green Auxiliary Power

C. Job Set-up



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Injection Method of the Hydraulic Fluid
Figure 801

(1)Position a 1.2 m (4 ft.) square steel plate in front of the nose wheels.
(2)Apply a thick layer of Material No. 04-027 to the upper surface of the steel plate.
(3)Put another 1.2 m (4 ft.) square steel plate on top of the greased steel plate.
(4)Move aircraft and position nose wheels on greased steel plates (Ref. 09-11-00, P. Block 1).
(5)On panel 4VU
- make certain that landing gear control lever is in **DOWN** position and prohibit its operation by displaying a warning notice.

(6)Between the First Officer's and 3rd Occupant's seats
- make certain that landing gear Free Fall extension control handle is in Normal position.

(7)Make certain that the following circuit breaker is closed.

PANEL	SERVICE	IDENT.	LOCATION
133VU	HYDRAULIC/NOSE/WHEEL/STRG	1GC	333/T53

(8)Position safety barriers prohibiting access to gear door travel ranges.
(9)Remove and discard cotter pin (1) (Ref. Fig. 802).
(10)Remove plug (2) from the shock absorber.

D. Procedure
(1)Pour half a liter of hydraulic fluid (Material No. 02-001 or No. 02-004 or No. 02-006) through the upper orifice of the leg on the internal wall, of the barrel by means of a syringe so that fluid runs down to the airflon-coated ring.
(2)Hold the leg in this position for one hour.
NOTE : Noises should disappear within a few flights, otherwise repeat the operation.
NOTE : Further to this maintenance action, oil leakage may appear during the next flights.
(3)Install plug (2) and safety with a new cotter pin (1).
(4)Coat zone B with (Material No. 09-008F).
(5)Energize the aircraft electrical network (Ref. 24-41-00, P. Block 301). Make certain that electronics racks ventilation system is correct.
(6)Connect hydraulic ground power cart to Green system (Ref. 29-10-00, P. Block 301).
(7)Pressurize Green hydraulic system (Ref. 29-10-00, P. Block 301) or (Ref. 29-21-00, P. Block 301).
(8)On mechanical center pedestal 9VU
- make certain that HP fuel shut off valve control levers are in **OFF** position.

(9)Open, safety and tag the following circuit breakers :

PANEL	SERVICE	IDENT.	LOCATION
133VU	ENGINES/ENG1/FUEL HP VALVE/CTL	3KC	333/T69
133VU	ENGINES/ENG2/FUEL HP VALVE/CTL	4KC	333/T70

(10)Using Captain's nose wheel steering handwheel located in the flight compartment, carry out 3 complete cycles comprising turn to left and right. Return wheel to the 0 degree position.

E. Close-up

(1)Shut down and disconnect hydraulic ground power cart (Ref. 29-10-00, P. Block 301) or shut down Green electric pumps (Ref. 29-21-00, P. Block 301).

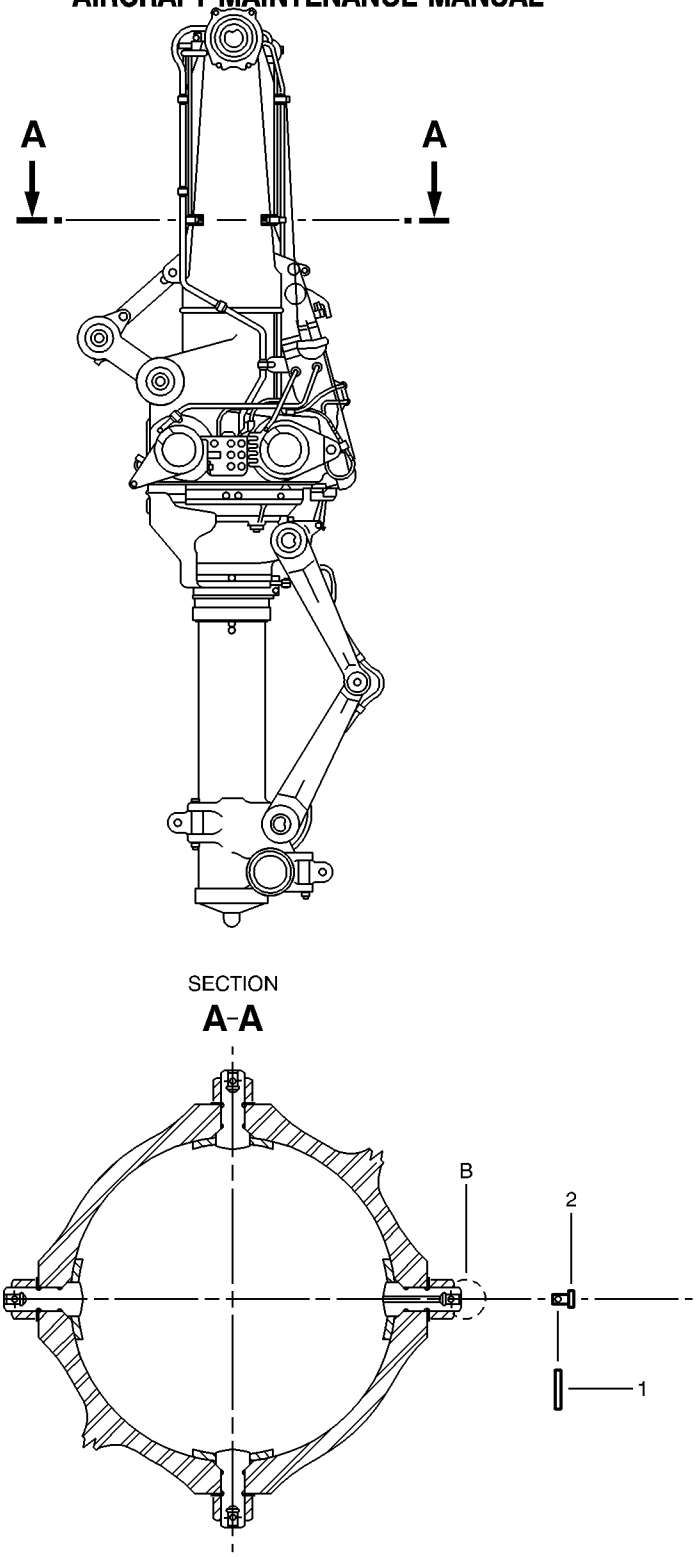
(2)De-energize the aircraft electrical network (Ref. 24-41-00, P. Block 301).

(3)Remove safety barriers.

CAUTION : MAKE CERTAIN THAT THE AREA UNDER THE AIRCRAFT IS CLEAR.

(4)Move aircraft (Ref. 09-11-00, P. Block 1) and remove greased steel plates.

(5)Remove safety clips and tags and close circuit breakers 3KC and 4KC.



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Injection Method of the Hydraulic Fluid
Figure 802

R

NOSE GEAR TOWING FITTING - DEACTIVATION/REACTIVATION

WARNING : CHECK THAT THE LANDING GEAR GROUND SAFETIES INCLUDING WHEEL CHOCKS ARE IN POSITION.

1. Nose Gear Towing Fitting Deactivation

A. Equipment and Materials

	ITEM	DESIGNATION
R	(1)C22646-1000	Safety Pin
	(2)	Warning Notices
	(3)	Spatula

B. Procedure

(1)Job set-up

(a)On panel 4VU :

- make certain that landing gear control lever is in DOWN position and prohibit its operation by displaying a warning notice.

(b)Between First Officer's and Third Occupant's seat :

- make certain that free fall extension control handle is in Normal position.

(c)Place ground towing control lever in towing position and install safety
R pin C22646-1000.

(2)Deactivation

(Ref. Fig. 901)

NOTE : With a spatula, remove rubber coating from parts to be removed, taking care not to damage surface finish.

(a)Remove and discard cotter pins (1), nuts (2) and washers (3).

(b)Remove bolts (5).

(c)Remove towing fitting (4).

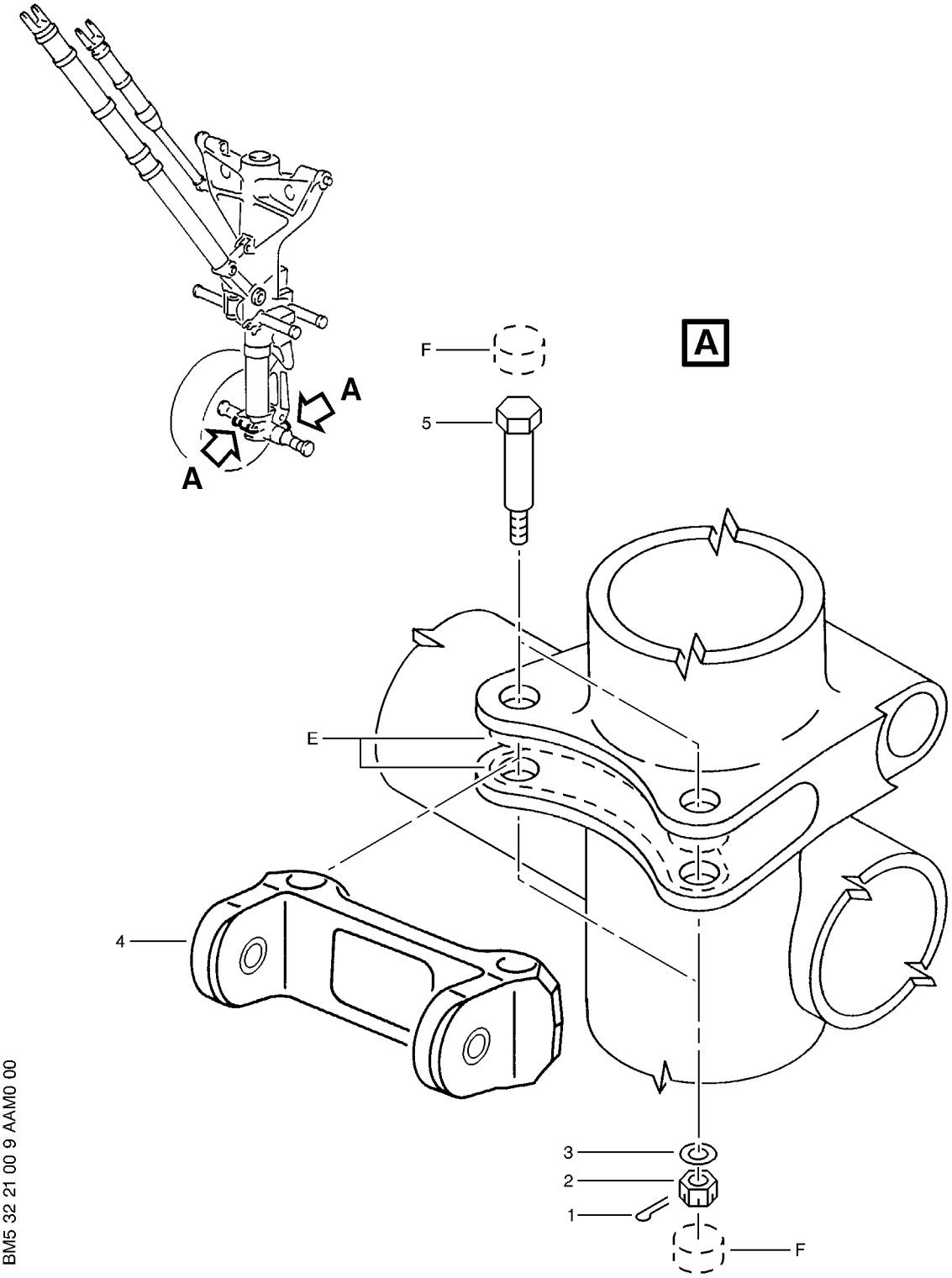
NOTE : After towing fitting removal, do not reassemble bolts, nuts and washers on NLG leg.

(3)Close-up

R (a)Remove safety pin C22646-1000 and make certain that control lever is in normal position.

(b)Remove warning notice.

(c)Make certain that working area is clean and clear of tools and miscellaneous items of equipment.



Nose Gear Towing Fitting
Figure 901

2. Nose Gear Towing Fitting Reactivation

A. Equipment and Materials

ITEM	DESIGNATION
(1)C22646	Safety Pin
(2)	Warning Notices
(3)	Spatula
(4)Material No. 04-004	Common Grease (Ref. 20-31-00)
(5)Material No. 05-047	Special Materials (Ref. 20-31-00)
(6)Material No. 09-001	Sealants (Ref. 20-31-00)
(7)Material No. 09-002	Sealants (Ref. 20-31-00)
(8)Material No. 11-002	Cleaning Agents (Ref. 20-31-00)
(9)Material No. 11-004A	Cleaning Agents (Ref. 20-31-00)

B. Procedure

(1)Job set-up

(a)On panel 4VU :

- make certain that landing gear control lever is in DOWN position and prohibit its operation by displaying a warning notice.

(b)Between First Officer's and Third Occupant's seat :

- make certain that free fall extension control handle is in Normal position.

(c)Place ground towing control lever in towing position and install safety pin C22646.

(2)Reactivation

(a)Clean the attachment hardware with Material No. 11-004A and dry with filtered compressed air.

(b)Apply a light coat of Material No. 05-047 to the threads of all nuts and bolts.

(c)Lightly coat bolts with Material No. 04-004 to facilitate installation.

(d)Position towing fitting (4) and line-up bores.

(e)Insert bolts (5).

(f)Install washers (3), tighten nuts (2) and TORQUE to between 1 and 1.5 m.daN (7.3 and 11 lbf.ft). Safety nuts with new cotter pins (1).

(3)Close-up

(a)Smear Material No. 09-002 on areas marked E and Material No. 09-001 on area marked F.

R (b)Remove safety pin C22646-1000 and make certain that control lever is in normal position.

(c)Remove warning notices.

(d)Make certain that working area is clean and clear of tools and miscellaneous items of equipment.

WARNING : CHECK THAT THE LANDING GEAR GROUND SAFETIES INCLUDING WHEEL CHOCKS ARE IN POSITION.

BEFORE APPLYING OR RELIEVING HYDRAULIC SYSTEM PRESSURE, MAKE CERTAIN THAT THE TRAVEL RANGES OF THE CONTROL SURFACES ARE CLEAR.

BEFORE PRESSURIZING HYDRAULIC SYSTEMS, CHECK THAT ALL CONTROLS ARE SET TO CORRESPOND WITH THE ACTUAL POSITION OF THE SERVICES THEY OPERATE.

BEFORE POWER IS SUPPLIED TO THE AIRCRAFT, MAKE CERTAIN THAT ELECTRICAL CIRCUITS UPON WHICH WORK IS IN PROGRESS ARE ISOLATED.

BEFORE PRESSURIZING HYDRAULIC SYSTEMS, MAKE CERTAIN THAT HYDRAULIC SYSTEM UNDER MAINTENANCE HAS BEEN ISOLATED.

1. Equipment and Materials

	ITEM	DESIGNATION
	A. 98A32203000000	Equipement - Nose Landing Gear Removal/ Installation
	B. 98A32203001000	Bar - Hoist Suspension, Nose Gear Telescopic Strut - Removal/Installation
	C.	Minihoist M030 (ALKAN) or equivalent
	D. 98A32201001000	Dolly - Ground Handling, Nose Gear
	E. D46227	Extractor
	F. C47574	Extractor
	G. C47271	Locating Pin
	H. C47569	Guide Cone
	J. Material No. 04-004	Common Greases (Ref. 20-31-00)
R	K. Material No. 04-022	Common Greases (Ref. 20-31-00)
R	L. Material No. 05-047	Special Materials (Ref. 20-31-00)
R	M. Material No. 09-001	Sealants (Ref. 20-31-00)
R	N. Material No. 09-002	Sealants (Ref. 20-31-00)
R	P. Material No. 11-002	Cleaning Agents (Ref. 20-31-00)
R	Q. Material No. 11-004A	Cleaning Agents (Ref. 20-31-00)
R	R.	Circuit Breaker Safety Clips
R	S.	Access Platform 2.6 m (8 ft. 7 in.)
R	T.	Blanking Plugs
R	U.	Safety Barriers
R	V.	Warning Notices
	Referenced Procedures	
	- 07-11-00, P. Block 1	Jacking for Aircraft Maintenance Operations
	- 12-12-29, P. Block 1	Hydraulics
	- 12-14-32, P. Block 1	Landing Gear Inflating and Charging
	- 12-22-32, P. Block 1	Landing Gear Lubrication
	- 12-37-32, P. Block 1	Wheel Replacement
	- 26-22-00, P. Block 501	APU FIRE Extinguishing
	- 29-10-00, P. Block 301	Main Hydraulic Power - Pressurization/ Depressurization

ITEM	DESIGNATION
- 29-14-00, P. Block 301	Hydraulic Reservoir Pressurizing System
- 32-00-00, P. Block 501	Landing Gear
- 32-12-11, P. Block 301	Main Gear Main Door - (Ground Door(s) Opening)
- 32-21-13, P. Block 401	Nose Gear Swivel Bearing
- 32-22-11, P. Block 301	Nose Gear Main Door - (Ground Door(s) Opening)
- 32-22-13, P. Block 401	Nose Gear Aft Door
- 32-22-15, P. Block 401	Nose Gear Leg Door
- 32-31-00, P. Block 501	Normal Extension and Retraction
- 32-31-24, P. Block 401	Nose Gear Telescopic Strut
- 32-33-00, P. Block 501	Free Fall Extension
- 32-42-00, P. Block 501	Normal Braking
- 32-42-66, P. Block 401	Nose Wheel Tachometer
- 33-46-12, P. Block 401	Taxi and Take-Off Light
- 32-51-19, P. Block 401	Swivel Fitting
- 32-51-00, P. Block 501	Steering

2. Procedure

A. Job Set-Up
(1)On panel 4VU
- make certain that landing gear control lever is in **DOWN** position and prohibit its operation by displaying a warning notice.

(2)Between First Officer's and Third Occupant's seats
- make certain that landing gear Free Fall extension control handle is in Normal position

(3)Open, safety and tag the following circuit breakers :

PANEL	SERVICE	IDENT.	LOCATION
22VU	LDG GEAR/EXTEND/CTL	1GA	201/J28
133VU	HYDRAULIC/L/G PROX DET/& RELAYS SYS1/GEAR ON &/CTR PNL/POS IND	3GB	332/U53
133VU	HYDRAULIC/NOSE/WHEEL/STRG	1GC	333/T53
133VU	HYDRAULIC/L/G PROX DET/& RELAYS SYS1/FLT/ GND	2GB	332/U51
133VU	HYDRAULIC/L/G PROX DET/& RELAY SYS2/RELAYS &/RETRACT/CTL	1GB	332/V52
	WARNING : PRIOR TO OPENING CIRCUIT BREAKER 119GB LOCATED ON PANEL 133VU, TAKE THE APPROPRIATE SAFETY MEASURES (REF. 32-00-00, P. BLOCK 501).		
133VU	HYDRAULIC/L/G PROX DET/& RELAYS SYS1/FLT/ GND	119GB	333/U52
133VU	HYDRAULIC/L/G PROX DET/& RELAYS SYS2/GEAR DOWN &/OVHD PNL/POS IND	83GB	331/V51

(4)Position access platform.
(5)Position safety barriers prohibiting access to gear door travel ranges.

WARNING : MAKE CERTAIN THAT THE DOOR TRAVEL RANGES ARE CLEAR.

(6)Open main and nose gear doors (Ref. 32-12-11, P. Block 301 and 32-22-11, P. Block 301).

WARNING : WHEN DOORS ARE OPEN MAKE CERTAIN THAT SAFETY COLLARS ARE POSITIONED ON DOOR ACTUATING CYLINDERS.

(7)Depressurize Green hydraulic system (Ref. 29-10-00, P. Block 301) and prohibit its pressurization by displaying a warning notice :
- on Green hydraulic system ground connectors
- on panel 427VU to prohibit operation of Green electric pumps (ELEC PUMPS pushbutton switch).

(8)Depressurize Green hydraulic reservoir (Ref. 29-14-00, P. Block 301) and prohibit its pressurization by displaying a warning notice :
- on panel 429VU to prohibit APU starting
- on reservoir pressurization connectors.

(9)Jack up aircraft until wheels clear ground (Ref. 07-11-00, P. Block 1).

(10)Remove leg door (Ref. 32-22-15, P. Block 401).

(11)Disconnect hydraulic lines after having noted relative positions and install blanking plug/caps.

(12)If extractor C47574 is used to remove landing gear trunnions, remove swivel fitting (Ref. 32-51-19, P. Block 401).

(13)Disconnect door sequence control spring rod (30), at point where it connects with gear.

(a)Remove cotter pin, remove nut (38), retain bush (37) for reinstallation.

(b)Remove bolt (32), retain washer (39).

(c)Disengage rod (30).

(14)Remove nose gear aft doors (Ref. 32-22-13, P. Block 401).

(15)Remove pulley mounting bracket in order to remove landing gear pins.

(16)Remove wheels (Ref. 12-37-32, P. Block 1).

(17)Remove taxi lights (Ref. 33-46-12, P. Block 401).

(18)Remove tachometers (Ref. 32-42-66, P. Block 401).

B. Removal (Ref. Fig. 401, 402, 403)

(1)With a spatula, remove rubber protective coating from parts to be removed taking care not to damage surface finish.

(2)Disconnection of steering control cables

(a)In zone 122, remove floor panels 122NF and 122PF.
- Disconnect cable at turnbuckles.

(b)Remove pressure seal at nose gear right swivel bearing
- Cut and remove lockwire, remove screws (41) and washers (44).
- Remove plate mounting (42).
- Remove teflon cable guide (43) from plate mounting.

(3)Remove LH and RH hinge bearing inner cover (Ref. 32-21-13, P. Block 401) to allow removal of hinge pins, using a bronze drift and a mallet.

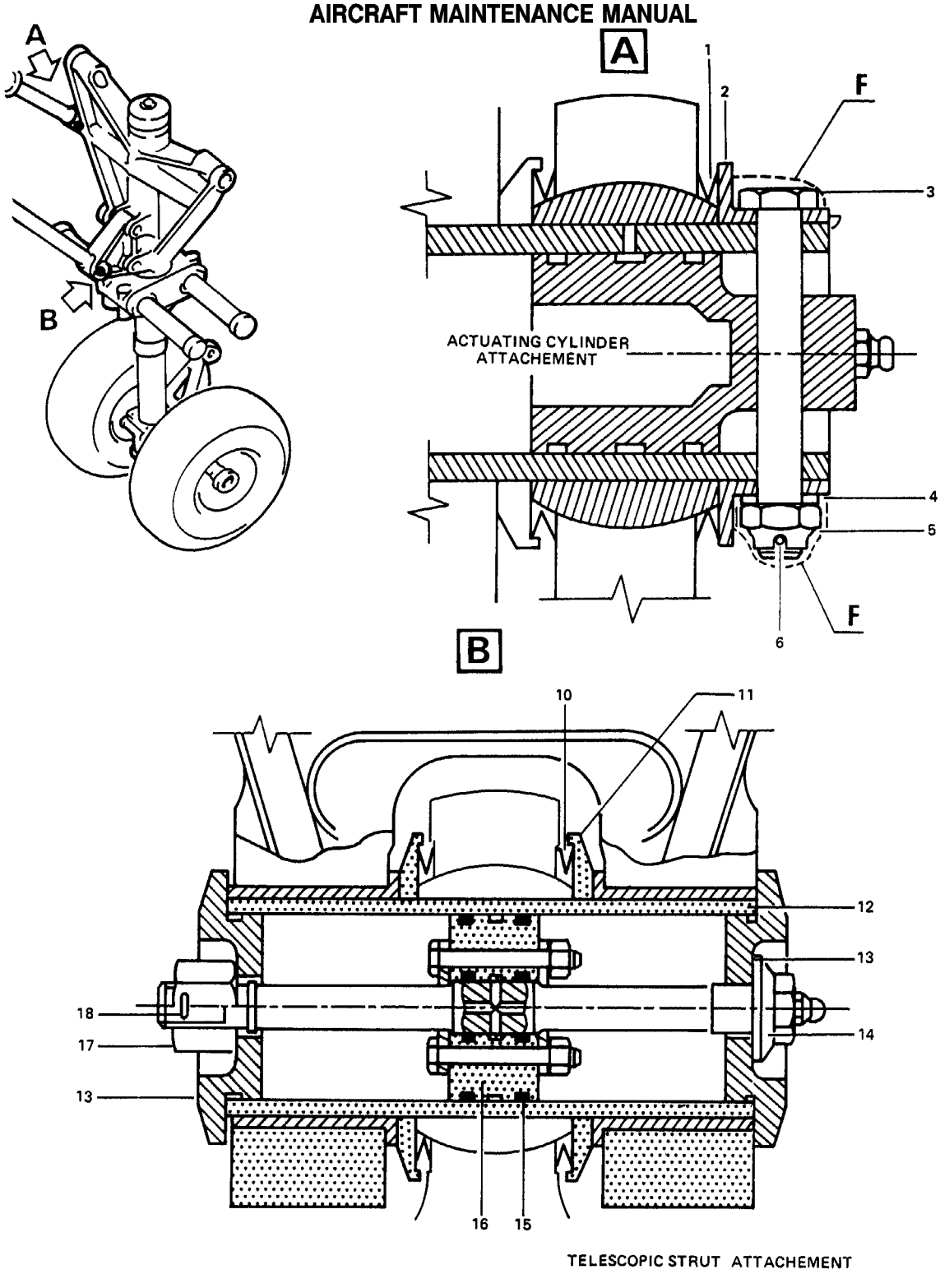
R (4)Disconnect actuating cylinder at point where it attaches to gear.

(a)Remove cotter pin (6), remove nut (5), washer (4) and bolt (3).

(b)Remove stop ring (2) and seal (1).

(c)Disengage actuating cylinder spherical end and remove second seal (1).

NOTE : Seals (1) must be handled with care so that they can be reinstalled.



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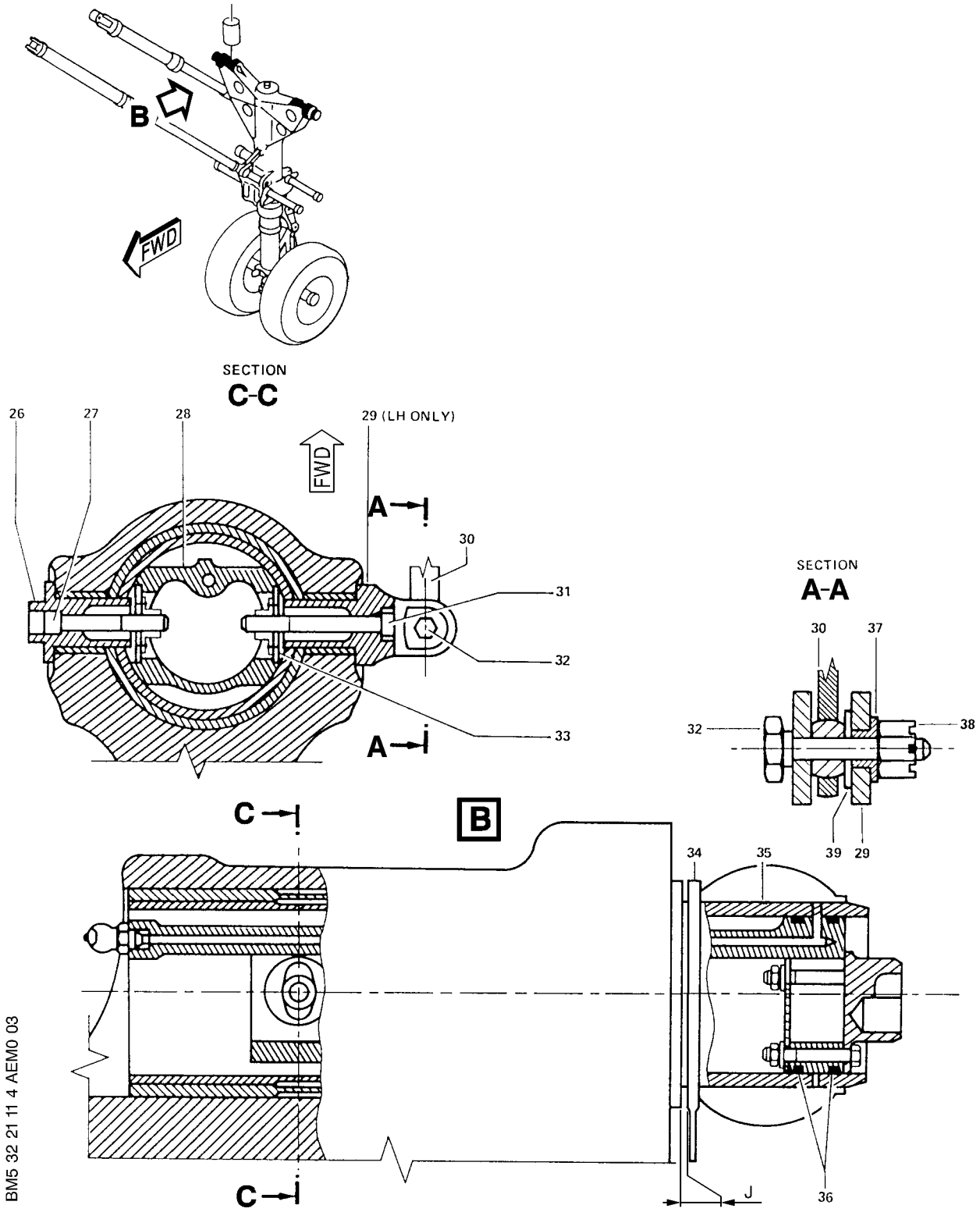
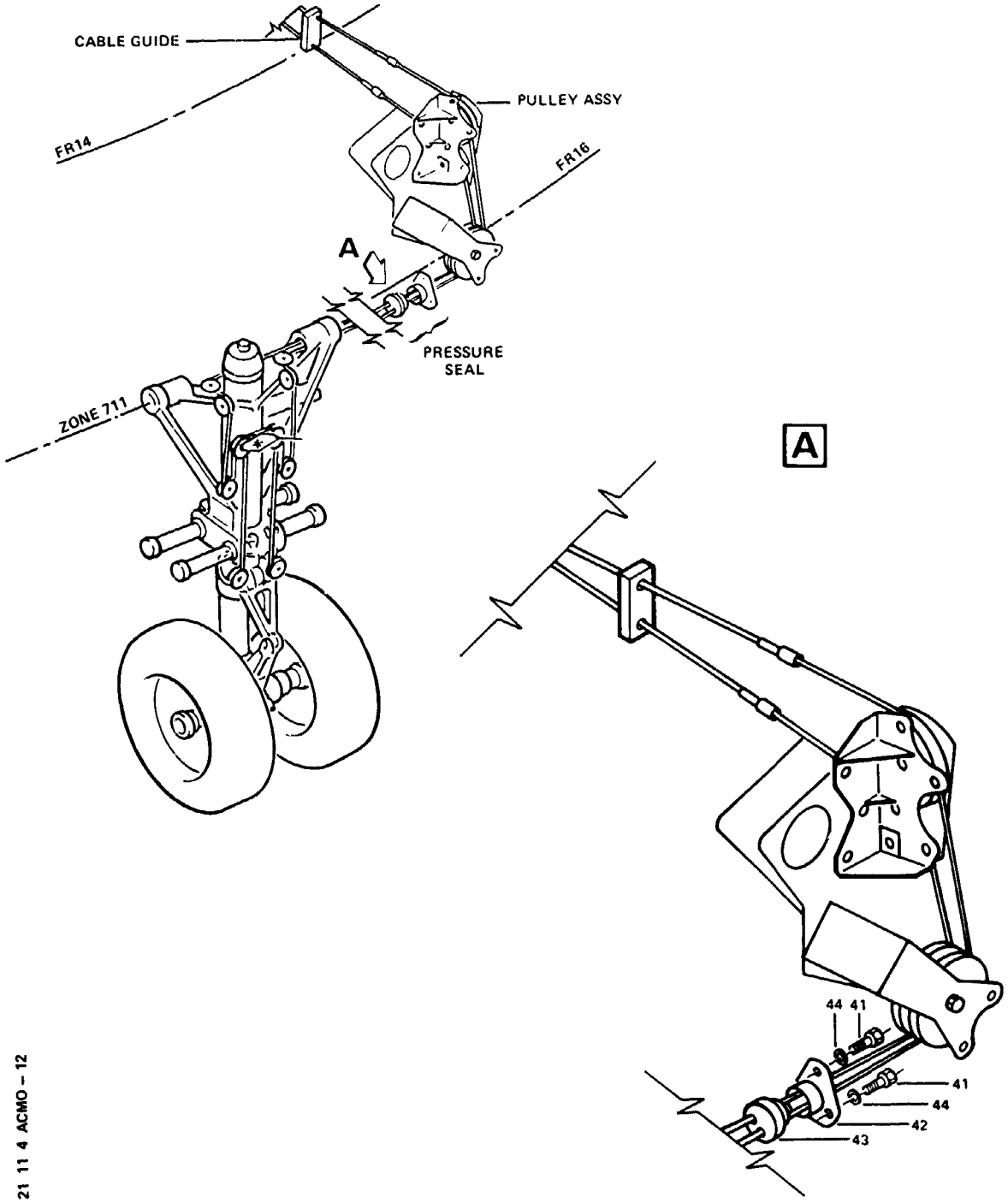
Nose Gear Leg Component Attachments
Figure 401



Nose Gear Leg Attachments
Figure 402

R



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Nose Gear Leg Steering Control Cables
Figure 403

(d)Attach actuating cylinder to aircraft structure.

R (5)Disconnect telescopic strut lower attachment fitting.

(a)Remove cotter pin 18, remove nut (17), remove end cap (13), bolt (14) together with lubrication insert (16) and the other end cap (13). Discard seals (15).

(b)Extract hollow pin (12) with extractor D46227.
Remove washers (11) and seals (10).
NOTE : Seals (10) should be handled with care so that they can be re-used if necessary.

R (6)Attach telescopic strut to the structure.

R (7)Install hook fitting of removal/installation bar 98A32203001000 on telescopic strut attachment fitting.

R (8)Install nose landing gear removal/installation equipment No. 98A32203000000 (Ref. Fig. 404)

(a)In nose gear leg
- Rig the two fork ends (61) and (62) on corresponding lateral fittings maintaining tube (63) in position.
- Install dolly center beam (72) on junction tube (63) with washer (75), screw (74) and nut (76).
- Connect adjustable rod (71) to removal/installation bar No. 98A32203001000.
- Connect the other rod end to beam (72) with washer (69), screw (68) and nut (70). Adjust attachment length to obtain beam horizontal configuration.

(b)On nose gear leg
Attach stirrup (64) with washers (79) and cross piece handles (78).
Install eye bolt (80) with screw (65), washer (66) and nut (67).
Install threaded rod on stirrup, adjust turnbuckle length and tighten nuts (82).

(c)Position removal/installation bar coupling pole head on dolly.

(d)Rig removal/installation bar on landing gear.
CAUTION : RIG DOLLY (73) ON BEAM (72) WHEN ATTACHING LANDING GEAR LEG WITH REMOVAL/INSTALLATION BAR CABLE.

(e)Insert cable (77) through stirrup (64) and install rigging pins.

(9)Support landing gear leg in order to avoid stress on landing gear leg/aircraft structure hinge points.

(10)Disconnect electrical cables after having marked their position ; install protective caps.

(11)Discharge shock absorber by means of charging valve located at the upper part of the gear.

(12)Remove gear trunnions.
NOTE : Remove LH trunnion then RH trunnion.

(a)Cut and remove lockwire on screws (27) and screw (31).
- Remove screws (27), hollow pin (26), screw (31) and fork (29).
NOTE : On RH trunnion, fork (29) is not installed, hollow pin (26) is installed at that location.

(b)Remove lubrication insert (28).

(c)Remove hollow pin (35) with extractor C47574 and retain washer (34) for reinstallation.

(d)Disengage gear from spherical bearings and remove.

(13)Remove rigging pin connecting dolly to beam.

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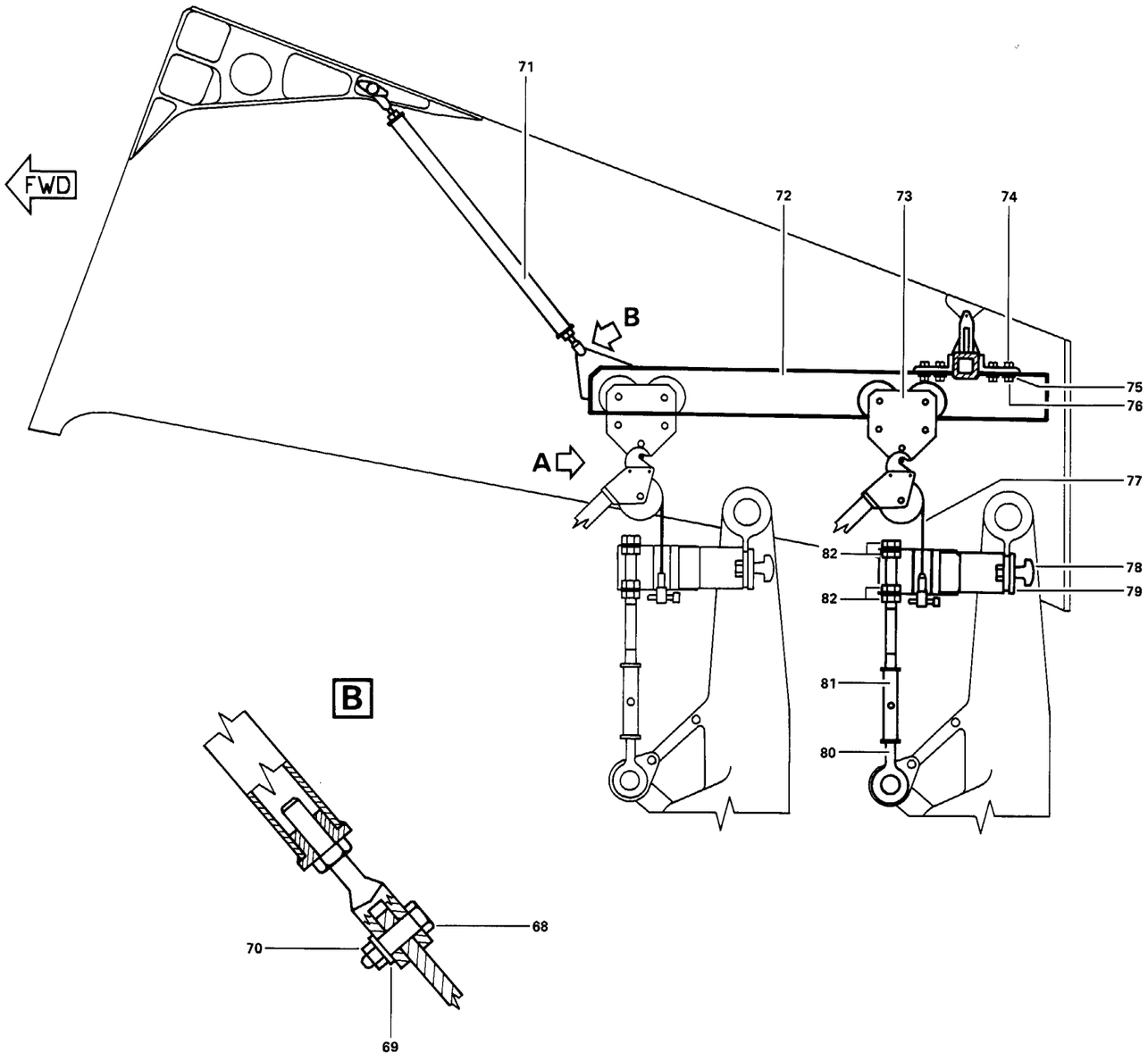
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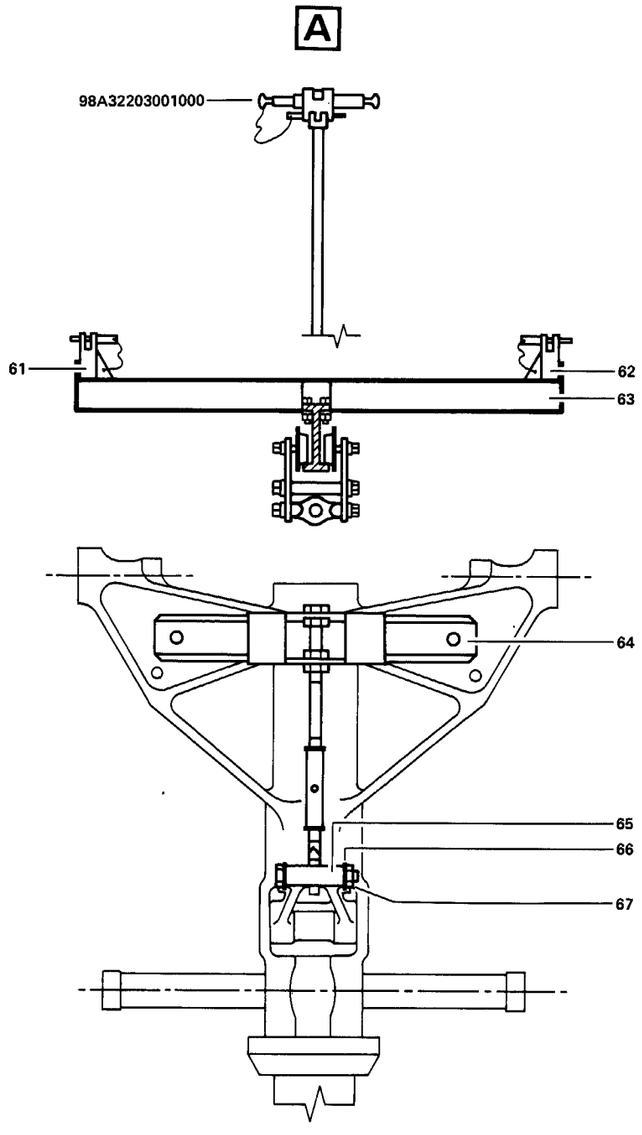
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98A32203001000
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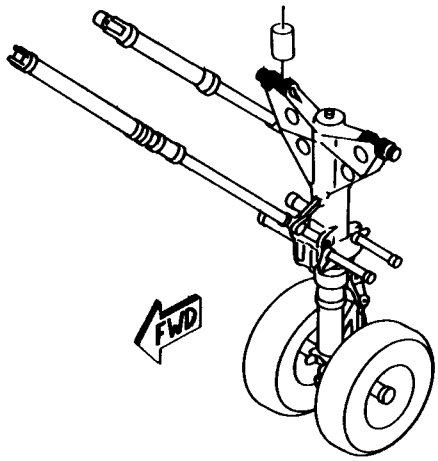
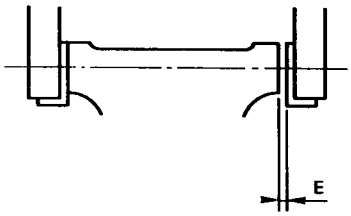
(14)Disengage gear using removal/installation bar

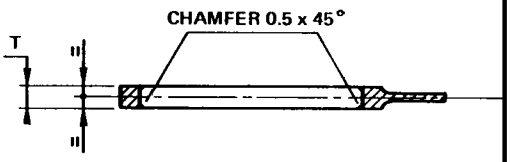
C. Preparation of Replacement Component
(1)Depreserve replacement gear.
Clean with material No.11-002 and dry with filtered compressed air.
(2)Clean all removed components with material No.11-002 and dry them with filtered compressed air.
NOTE : Clean the attachment hardware with Material No. 11-004A and dry with filtered compressed air.
Apply a light coat of Material No. 05-047 to the threads of all nuts, screws, bolts and pins.
(3)Make certain that spherical bearings are free to move. If they are jammed, remove (Ref. 32-21-13, P. Block 401) and disassemble bearing. Clean spherical end and housing. Make certain that bearings move freely.
(4)Replace lubrication insert seals (36).
(5)Check removed parts for correct condition : evidence of oxidation, pitting, flaking of chrome plating.
(6)Install swivel fitting Ref.32-51-19, P. Block 401) and pulley mounting on removed landing gear.
(7)Secure gear to be removed on nose gear dolly No. 98A32201001000.
(8)Remove gear from removal/installation equipment No. 98A32203000000.

D. Installation
NOTE : Pins shall be coated with Material No. 04-004 or Material No. 04-022 at time of installation.
NOTE : Do not mix Material No. 04-004 with Material No. 04-022.
You can use Material No. 04-022 as an alternative to Material No. 04-004. Clean and degrease the parts before you use Material No. 04-022.
(1)Install the gear leg on handling dolly. Remove dolly No. 98A32201001000.
(2)Place gear leg in rigging position using removal/installation bar.
(3)Install gear leg trunnions.
(a)Install gear leg between the two spherical trunnion bearings.
(b)Move the dolly in order to align bores in leg and in spherical bearings.
(c)Adjustment of nose gear lateral positionning (Ref. Fig. 405).
1 Install hollow pins (35) using guide cone C47569.
2 Move the dolly to bring gear leg laterally against one of the swivel bearings.
3 Then on the opposite side, measure clearance E between gear leg and bearing.
4 Using table, select two washers (35) to get a final clearance J between 0.2 mm and 0.5 mm (0.0078 and 0.0197 in.) (Ref. Fig. 402).
NOTE : Clearance is obtained by rectifying thickness of the two washers (34) according to table.
5 Remove hollow pins (35).
6 Position washers (34) and install hollow pins (35) using guide cone C47569.
NOTE : One washer (34) must be installed on each side.
(4)Install lubrication inserts (28) inside pins.
Make certain that fitted washers (33) are correctly located.





E MEASURED	CHOISE OF 2 WASHERS
8.60 TO 8.88mm = (0.3385 TO 0.3496in.)	T1 + T2
8.87 TO 9.15mm = (0.3492 TO 0.3602in.)	T1 + T3
9.14 TO 9.42mm = (0.3598 TO 0.3708in.)	T2 + T3
9.41 TO 9.69mm = (0.3704 TO 0.3814in.)	T1 + T4
9.68 TO 9.96mm = (0.3811 TO 0.3921in.)	T2 + T4
9.95 TO 10.23mm = (0.3917 TO 0.4027in.)	T3 + T4
10.22 TO 10.50mm = (0.4023 TO 0.4133in.)	T3 + T5
10.49 TO 10.77mm = (0.4129 TO 0.4240in.)	T3 + T6
10.76 TO 11.04mm = (0.4236 TO 0.4336in.)	T4 + T5
11.03 TO 11.31mm = (0.4342 TO 0.4452in.)	T4 + T6
11.30 TO 11.58mm = (0.4448 TO 0.4559in.)	T4 + T7
11.57 TO 11.85mm = (0.4555 TO 0.4665in.)	T5 + T7
11.84 TO 12.12mm = (0.4661 TO 0.4771in.)	T6 + T7
12.11 TO 12.39mm = (0.4767 TO 0.4877in.)	T5 + T8
12.38 TO 12.66mm = (0.4874 TO 0.4984in.)	T6 + T8
12.65 TO 12.93mm = (0.4980 TO 0.5090in.)	T7 + T8
12.92 TO 13.20mm = (0.5086 TO 0.5196in.)	T7 + T9
13.19 TO 13.47mm = (0.5192 TO 0.5303in.)	T7 + T10
13.46 TO 13.74mm = (0.5299 TO 0.5409in.)	T8 + T9
13.73 TO 14.00mm = (0.5405 TO 0.551in.)	T8 + T10



MATERIAL :35CD4 STEEL - TS 1180-1320 MPa OR AISI 4135 HEAT TREATED TO 180-200 KSI
PARALLELISM : 0,10% BETWEEN THE TWO REMACHINED FACES
SURFACE TEXTURE : Ra 1.6 MICRON
PROTECTIVE TREATMENT : CHEMICAL BLUING AS PER SECTION 7 OF CMM 32-09-01
REWORK MUST BE EQUAL ON EACH FACE
THICKNESSES T TO PRODUCE AREAS FOLLOWS :

T1 = 4.06mm(0.1598in.)
T2 = 4.33mm(0.1704in.)
T3 = 4.60mm(0.1811in.)
T4 = 5.14mm (0.2023in.)
T5 = 5.41mm (0.2129in.)
T6 = 5.68mm(0.2236in.)
T7 = 5.95mm(0.2342in.)
T8 = 6.49mm(0.2555in.)
T9 = 6.76mm(0.2661in.)
T10 = 7.03mm(0.2767in.)

TOLERANCE ON THESE THICKNESSES IS ± 0.005 mm.

- **THE TABLE TO THE RIGHT INDICATED THE WASHERS TO BE USED IN ACCORDANCE WITH DIMENSION E MEASURED ON AIRCRAFT**
- **THE CHOICE OF WASHERS ENABLES THE SIDE PLAY OF 0.2 mm TO 0.5 mm (0.007 in. TO 0.019 in.)**

BM5 32 21 11 4 BDM0 03

Adjustment of Gear Leg Lateral Clearance with Respect to Aircraft Bearings
Figure 405

R

(5)Using rigging pin (positioning pin C47271) line up bores of hollow pin (35), lubrication insert (28) and barrel bore.
(6)Install hollow pins (26), fork (29) on left hand torsion arm with fork (29) facing forward (Ref. Fig. 402).
CAUTION : MAKE SURE THAT THE FORK ITEM (29) IS INSTALLED FACING FORWARD.
(7)Install screws (27) and (31) TORQUE to between 1.3 and 1.5 m.daN (9.594 to 11.070 lbf.ft.).
Safety screws (27) and screw (31) with lockwire.
(8)Remove nose gear removal/installation equipment No. 98A32203000000.
(a)Disconnect removal/installation bar (77) cable from gear leg.
(b)Remove bar from handling dolly.
(c)Remove stirrup (64) from leg.
(d)Remove adjustable rod (81), center beam (72) and tube (63).
(9)Remove hook fitting of removal/installation bar No. 98A32203001000 from telescopic strut attachment fitting.
(10)Connect telescopic strut lower attachment fitting.
(a)Bring strut into locked extended configuration. Carefully wipe strut clean.
(b)Install strut spherical end fitting into gear cylinder fork fitting.
(c)Install seal (10) and washer (11).
(d)Install hollow pin (12) using extractor D46227.
(e)Install bolt (14) together with lubrication insert (16) and end cap (13). Install two new seals (15).
NOTE : Install lubrication insert taking care not to damage seals.
R (f)Install other end cap (13), nut (17) ; TORQUE nut to between 7 and
R 8.2 m.daN (51.7 and 60.5 lbf.ft.).
Safety nut with cotter pin (18).
(g)Apply a coat of Material No. 09-001 on head of bolt (14) and nut (17).
(11)Connect actuating cylinder to gear.
(a)Install seal (1).
(b)Line up spherical end fitting bore with pin on gear, then install spherical end fitting on pin.
(c)Install second seal (1) on spherical bearing and install stop ring (2).
(d)Install bolt (3) washer (4) and nut (5).
TORQUE to between 0.9 m.daN and 1.7 m.daN (6.642 and 12.546 lbf.ft.) and safety with cotter pin (6).
(12)Connect door sequence control rod.
(a)Install and connect rod (30) on fork (29).
(b)Install bolt (32) with washer (39).
(c)Install bush (37) and nut (38). Tighten nut (38) and safety with cotter pin.
(13)Connect nose wheel steering control cables.
(a)Install pressure seal at nose gear right swivel bearing.
- Install teflon cable guide (43) on plate mounting.
- Install plate mounting (42).
- Install washers (44) and screws (41). Safety screws (41) with lockwire.
(b)Connect cable at turnbuckles.
- Adjust cable tension as per instructions (Ref. 32-51-00, P. Block 501).
NOTE : If protective covers of swivel bearing have been removed to

install gear leg trunnion with guide cone, install them following procedure 32-21-13, P. Block 401.

(14)In zone 122, install floor panels 122NF and 122PF.
(15)Install taxi lights (Ref. 33-46-12, P. Block 401).
(16)Install wheels (Ref. 12-37-32, P. Block 1).
(17)Install tachometers (Ref. 32-42-66, P. Block 401).
(18)Remove blanking caps/plugs, attach and connect hydraulic lines.
(19)Remove protective caps, attach and connect electrical wiring.
(20)Install nose gear secondary doors (Ref. 32-22-13, P. Block 401) and if adjustment is necessary, system has to be restored (Green system pressurized).
(21)Install leg door (Ref. 32-22-15, P. Block 401).
(22)Coat nuts and bolt heads at the following attaching joints with Material No.09-001 :
- pulley mountings, swivel fitting, door sequence control rod and nose gear aft door control rods.

(23)If nose gear leg has been replaced, charge shock absorber (Ref. 12-14-32, P. Block 1).
(24)Adjust the nose gear door sequence valve control (Ref. 32-31-00, P.Block 501).
(25)Carry out lubrication procedure (Ref. 12-22-32, P. Block 1).

E. Test

Before perform following tests, pressurize hydraulic reservoirs (Ref. 29-14-00, P. Block 301) and replenish hydraulic reservoirs if necessary (Ref. 12-12-29, P. Block 1).

(1)Carry out a free fall extension functional test (Ref. 32-33-00, P. Block 501).
(2)Carry out a landing gear normal retraction test and a landing gear normal extension test (Ref. 32-31-00, P. Block 501, paragraph 4. System Test).

CAUTION : BEFORE TEST, SLOWLY RETRACT LANDING GEAR BY USING LOW HYDRAULIC FLOW RATE AND THEREBY CHECK CLEARANCE BETWEEN LANDING GEAR AND ADJACENT STRUCTURE, AND CHECK LANDING GEAR FOR EVIDENCE OF BINDING OR TENDENCY TO HANG UP; ALSO MAKE CERTAIN THAT UPLOCK ROLLER ENGAGES CORRECTLY WITH UPLOCK HOOK.

NOTE : Check for hydraulic fluid leakage during initial pressurization and upon close-up of tests.

(3)Carry out a system test of gear retraction inhibition with nose gear shock absorber compressed and nose wheel steering to the left and to the right (Ref. 32-31-00, P. Block 501).
(4)Carry out functional test of steering hydraulic system (Ref. 32-51-00, P. Block 501).
(5)Carry out functional test of APU Automatic Fire Extinguishing Circuit (Ref. 26-22-00, P. Block 501, para 6.) or operational test of APU Automatic Fire Extinguishing Circuit if test set is not available (Ref. 26-22-00, P. Block 501, Para. 2).
(6)Carry out nose gear tachometer test (Ref. 32-42-00, P. Block 501).
(7)Carry out adjustment/test of taxi lights (Ref. 33-46-12, P. Block 501).

F. Close-Up

(1)Remove hydraulic fluid container.

(2)Make certain that working are is clean and clear of tools and miscellaneous items of equipment.
WARNING : MAKE CERTAIN THAT AREA UNDER THE AIRCRAFT IS CLEAR.
(3)Lower the aircraft onto its wheels (Ref. 07-11-00, P. Block 1).
(4)Remove safety clips and tags and close :
- Circuit Breakers 3GB, 1GB, 2GB, 1GA, 1GC, 4GB, 83GB and 119GB.
WARNING : AFTER CLOSING CIRCUIT BREAKER 119GB, PERFORM APPROPRIATE PROCEDURE (REF. 32-00-00, P. Block 501).
(5)Pressurize hydraulic reservoirs (Ref. 29-14-00, P. Block 301)
WARNING : MAKE CERTAIN THAT THE DOOR TRAVEL RANGES ARE CLEAR.
(6)Close doors (Ref. 32-12-11, P. Block 301 or 32-22-11, P. Block 301).
(7)Replenish hyraulic reservoirs if necessary (Ref. 12-12-29, P. Block 1).
(8)Remove warning notices.
(9)Close access doors, remove access platforms and safety barriers.
(10)Remove all ground handling and maintenance equipment standard and special tools, together with ground power and replenishing equipment, all access equipment and miscellaneous items.

NOSE GEAR SWIVEL BEARING - REMOVAL/INSTALLATION

WARNING : CHECK THAT THE LANDING GEAR GROUND SAFETIES INCLUDING WHEEL CHOCKS ARE IN POSITION.
BEFORE APPLYING OR RELIEVING HYDRAULIC SYSTEM PRESSURE, MAKE CERTAIN THAT THE TRAVEL RANGES OF THE CONTROL SURFACES ARE CLEAR.
BEFORE PRESSURIZING HYDRAULIC SYSTEMS, CHECK THAT ALL CONTROLS ARE SET TO CORRESPOND WITH THE ACTUAL POSITION OF THE SERVICES THEY OPERATE.
BEFORE POWER IS SUPPLIED TO THE AIRCRAFT MAKE CERTAIN THAT ELECTRICAL CIRCUITS UPON WHICH WORK IS IN PROGRESS ARE ISOLATED.
BEFORE PRESSURIZING HYDRAULIC SYSTEMS MAKE CERTAIN THAT HYDRAULIC SYSTEM UNDER MAINTENANCE HAS BEEN ISOLATED.

1. Equipment and Materials

	ITEM	DESIGNATION
	A.	Access Platforms (2 m - 2.60 m) (6 ft. 7 in. - 8 ft. 7 in.)
	B.	Warning Notice
	C.	Safety Barriers
	D.	Circuit Breaker Safety Clips
	E. Material No. 04-004	Common Greases (Ref. 20-31-00)
R	F. Material No. 04-022	Common Greases (Ref. 20-31-00)
R	G. Material No. 11-002	Cleaning Agents (Ref. 20-31-00)
	Referenced Procedures	
	- 07-11-00, P. Block 1	Jacking for Aircraft Maintenance Operations
	- 12-12-29, P. Block 1	Hydraulics
	- 29-10-00, P. Block 301	Main Hydraulic Power - Pressurization/Depressurization
	- 29-14-00, P. Block 301	Hydraulic Reservoir Pressurizing System
	- 32-00-00, P. Block 501	Landing Gear
	- 32-12-11, P. Block 301	Main Gear Main Door - (Ground Door(s) Opening)
	- 32-21-11, P. Block 401	Nose Gear
	- 32-22-11, P. Block 301	Nose Gear Main Door - (Ground Door(s) Opening)
	- 32-31-00, P. Block 501	Normal Extension and Retraction
	- 53-12-81, P. Block 601	Fuselage Nose Section Fittings

2. Procedure

A. Job Set-Up
(1)On panel 4VU,
- make certain that landing gear control lever is in **DOWN** position and prohibit its operation by displaying a warning notice.

(2)Between First Officer's and Third Occupant's seats,
- make certain that landing gear Free Fall extension control handle is in Normal position.

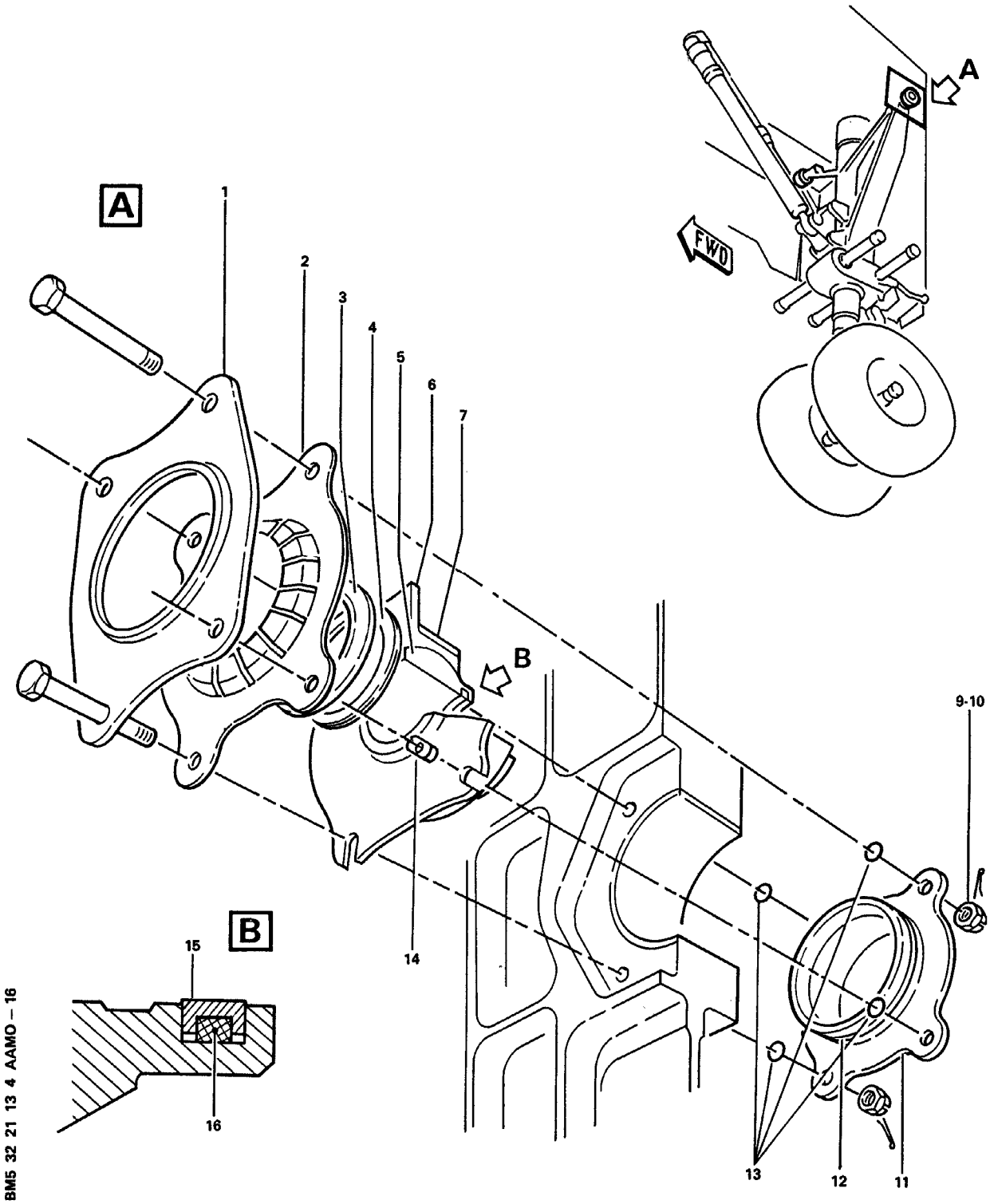
(3)Open, safety and tag the following circuit breakers :

PANEL	SERVICE	IDENT.	LOCATION
22VU	LDG GEAR/EXTEND/CTL	1GA	201/J28
133VU	HYDRAULIC/L/G PROX DET/& RELAYS SYS 1/ GEAR DN &/CTR PNL/POS IND	3GB	332/U53
133VU	HYDRAULIC/NOSE/WHEEL/STRG	1GC	333/T53
133VU	HYDRAULIC/L/G PROX DET/& RELAYS SYS 2/ FLT/GND	1GB	331/V52
133VU	HYDRAULIC/L/G PROX DET/& RELAYS SYS 1/ RELAYS &/RETRACT/CTL	2GB	332/U51
	WARNING : PRIOR TO OPENING CIRCUIT BREAKER 119GB LOCATED ON PANEL 133VU, TAKE THE APPROPRIATE SAFETY MEASURES (Ref. 32-00-00, P. BLOCK 501).		
133VU	HYDRAULIC/L/G PROX DET/& RELAYS SYS 1/ FLT/GND	119GB	332/U52
133VU	HYDRAULIC/L/G PROX DET/& RELAYS SYS 2/ GEAR DOWN &/OVHD PNL/POS IND	83GB	331/V51

(4)Position access platforms.
(5)Position safety barriers prohibiting access to gear door travel ranges.
WARNING: MAKE CERTAIN THAT THE DOOR TRAVEL RANGES ARE CLEAR.
(6)Open main gear and nose gear doors (Ref. 32-12-11, P. Block 301 and 32-22-11, Page Block 301).
WARNING : WHEN DOORS ARE OPEN MAKE CERTAIN THAT SAFETY COLLARS ARE POSITIONED ON DOOR ACTUATING CYLINDERS.
(7)Depressurize Green hydraulic reservoir (Ref. 29-14-00, P. Block 301) and prohibit its pressurization by displaying a warning notice
- on panel 429VU prohibiting APU starting.
- on reservoir pressurization connectors.
(8)Depressurize Green hydraulic system (Ref. 29-10-00, P. Block 301) and prohibit its pressurization by displaying a warning notice :
- on Green system ground connectors,
- on panel 427VU to prohibit operation of Green electric pumps (ELEC PUMPS pushbutton switch).
(9)Jack up the aircraft, wheels clear of ground (Ref. 07-11-00, P. Block 1).
(10)Open sealed doors at level of nose gear hinge points.
(11)Remove the nose gear (Ref. 32-21-11, P. Block 401).
NOTE : Do not remove equipment from landing gear leg.

B. Removal (Ref. Fig. 401)
NOTE : Removal of right and left swivel bearings being identical, removal of the left bearing only is described.
(1)Remove cotter pins and nuts (9), protective cover (11) and seals (13).
(2)Retain stop plate (1), dust boot (2), bush (4) and stop (3).
(3)Extract swivel bearing (5) fitted with housing (6) complete with lockwasher (14) and bush (7).

C. Preparation of the Replacement Component
(1)Make certain that components for installation are in correct condition (replace any damaged components).



Nose Gear - Swivel Bearing
Figure 401

(2)Depreserve the replacement bearing.
(3)Clean all components for installation and the swivel housing with material No. 11-002, and dry with filtered compressed air.

D. Installation (Ref. Fig. 401)

R (1)Lightly coat the swivel housing with Material No. 04-004 or
R Material No. 04-022 to facilitate installation.
R NOTE : Do not mix Material No. 04-004 with Material No. 04-022.
R You can use Material No. 04-022 as an alternative to
R Material No. 04-004. Clean and degrease the parts before you use
R Material No. 04-022.
(2)Install new seals (15) and (16) on swivel bearing (5).
(3)Install swivel bearing (5) fitted with housing (6) slots facing downwards and bush (7).
(4)Install lockwasher (14) in forward slot of housing (6).
(5)Install bush (4), stop (3), dust boot (2), stop plate (1), and bolts (10).
NOTE : Position lockwasher (14) to enable installation of corresponding bolt (10).
(6)Install new seals (13).
(7)Install a new seal (12) on protective cover (11).
(8)Install protective cover (11), install nuts (9) and safety with cotter pin.
(9)Check that the swivel bearing does not stick and that it can move freely in its housing.
(10)Install the nose gear (Ref. 32-21-11, P. Block 401).

E. Tests

(1)Carry out a landing gear Normal extension and retraction functional test (Ref. 32-31-00, P. Block 501).

F. Close-up

(1)Remove hydraulic fluid container.
(2)Make certain that working area is clean and clear of tools and miscellaneous items of equipment.
WARNING : MAKE CERTAIN AREA UNDER THE AIRCRAFT IS CLEAR.
(3)Lower the aircraft onto its wheels (Ref. 07-11-00, P. Block 1).
(4)Remove safety clips and tags and close circuit breaker 3GB, 1GB, 2GB, 1GA, 1GC, 119GB and 83GB.
WARNING : AFTER CLOSING CIRCUIT BREAKER 119GB LOCATED ON PANEL 133VU, PERFORM APPROPRIATE PROCEDURE (REF. 32-00-00, P. BLOCK 501).
(5)Pressurize hydraulic reservoirs (Ref. 29-14-00, P. Block 301).
WARNING: MAKE CERTAIN THAT DOOR TRAVEL RANGES ARE CLEAR
(6)Close landing gear main doors (Ref. 32-12-11, P. Block 301 or 32-22-11, P. Block 301).
(7)Replenish hydraulic reservoirs if necessary (Ref. 12-12-29, P. Block 1).
(8)Remove warning notices.
(9)Close access doors, remove access platforms and safety barriers.
(10)Remove all ground handling and maintenance equipment standard and special tools, together with ground power and replenishing equipment, all access equipment and miscellaneous items.

WARNING : CHECK THAT LANDING GEAR GROUND SAFETIES INCLUDING WHEEL CHOCKS ARE IN POSITION.

BEFORE APPLYING OR RELIEVING HYDRAULIC SYSTEM PRESSURE, MAKE CERTAIN THAT THE TRAVEL RANGES OF THE CONTROL SURFACES ARE CLEAR.

BEFORE PRESSURIZING HYDRAULIC SYSTEMS, CHECK THAT ALL CONTROLS ARE SET TO CORRESPOND WITH THE ACTUAL POSITION OF THE SERVICES THEY OPERATE.

BEFORE POWER IS SUPPLIED TO THE AIRCRAFT MAKE CERTAIN THAT ELECTRICAL CIRCUITS UPON WHICH WORK IS IN PROGRESS ARE ISOLATED.

BEFORE PRESSURIZING HYDRAULIC SYSTEMS MAKE CERTAIN THAT HYDRAULIC SYSTEM UNDER MAINTENANCE HAS BEEN ISOLATED.

1. Reason for the Job

A. Removal/Installation of Nose Gear Shock Absorber

B. Removal/Installation of Towing Fitting

C. Removal/Installation of Nose Gear Bushed Stop

D. Removal/Installation of Nose Gear Shock Absorber Upper Cam Seals and Packings

2. Nose Gear Shock Absorber

A. Equipment and Materials

	ITEM	DESIGNATION
	A.	Lifting Trolley, Lifting Capability : Height 2.50 m (8 ft. 4 in.) Weight 170 kg (265 lb.)
	B. C47596	Extractor
	C. C47262	Extractor
	D. C47263	Adapter
	E. C47227	Guide Cone
	F. C47621	Locating Pin
	G.	Access Platforms 2 m - 2.60 m (6 ft. 7 in. - 8 ft. 7 in.)
	H.	Safety Barriers
	J.	Warning Notice.
	K.	Circuit Breaker Safety Clips
R	L. Material No. 02-001	Hydraulic Fluids (Ref. 20-31-00)
	or	
R	Material No. 02-004	Hydraulic Fluids (Ref. 20-31-00)

ITEM	DESIGNATION
R or	
R Material No. 02-006	Hydraulic Fluids (Ref. 20-31-00)
M. Material No. 04-004	Common Greases (Ref. 20-31-00)
N. Material No. 04-022	Common Greases (Ref. 20-31-00)
P. Material No. 05-047	Special Materials (Ref. 20-31-00)
Q. Material No. 09-001	Sealants (Ref. 20-31-00)
R. Material No. 09-002	Sealants (Ref. 20-31-00)
S. Material No. 11-002	Cleaning Agents (Ref. 20-31-00)
T. Material No. 11-004A	Cleaning Agents (Ref. 20-31-00)
Referenced Procedures	
- 07-11-00, P. Block 1	Jacking for Aircraft Maintenance Operations
- 12-12-32, P. Block 1	Landing Gear Replenishing
- 12-22-32, P. Block 1	Landing Gear Lubrication
- 29-10-00, P. Block 301	Main Hydraulic Power - Pressurization/ Depressurization
- 29-14-00, P. Block 301	Hydraulic Reservoir Pressurizing System
- 32-12-11, P. Block 301	Main Gear Main Door - (Ground Door(s) Opening)
- 32-22-11, P. Block 301	Nose Gear Main Door - (Ground Door(s) Opening)
- 32-31-00, P. Block 501	Normal Extension and Retraction
- 12-37-32, P. Block 1	Nose Landing Gear Wheel
- 32-42-66, P. Block 401	Nose Wheel Tachometer

B. Procedure

(1)Job set-up

(a)On panel 4VU

- make certain that landing gear control lever is in **DOWN** position and prohibit its operation by displaying a warning notice.

(b)Between First Officer's and Third Occupant's seats

- make certain that Free Fall extension control handle is in Normal position.

(c)Open, safety and tag the following circuit breaker :

PANEL	SERVICE	IDENT.	LOCATION
133VU	HYDRAULIC/NOSE/WHEEL/STRG	1GC	333/T53

(d)Position access platforms.

(e)Position safety barriers prohibiting access to gear door travel ranges.

WARNING : MAKE CERTAIN THAT THE DOOR TRAVEL RANGES ARE CLEAR.

(f)Open main gear doors and nose gear doors (Ref. 32-12-11, P. Block 301 and 32-22-11, P. Block 301).

WARNING : WHEN DOORS ARE OPEN MAKE CERTAIN THAT SAFETY COLLARS ARE POSITIONED ON DOOR ACTUATING CYLINDERS.

(g)Depressurize Green hydraulic reservoir (Ref. 29-14-00, P. Block 301) and prohibit its pressurization by displaying a warning notice :

- On panel 429VU to prohibit APU starting
- On reservoir pressurization connector.

(h)Depressurize Green hydraulic system (Ref. 29-10-00, P. Block 301) and prohibit its pressurization by displaying a warning notice :

- On Green hydraulic system ground connectors
- On panel 427VU to prohibit operation of Green electric pumps (ELEC PUMPS pushbutton switch).

NOTE : With a spatula, remove rubber coating from parts to be removed taking care not to damage surface finish.

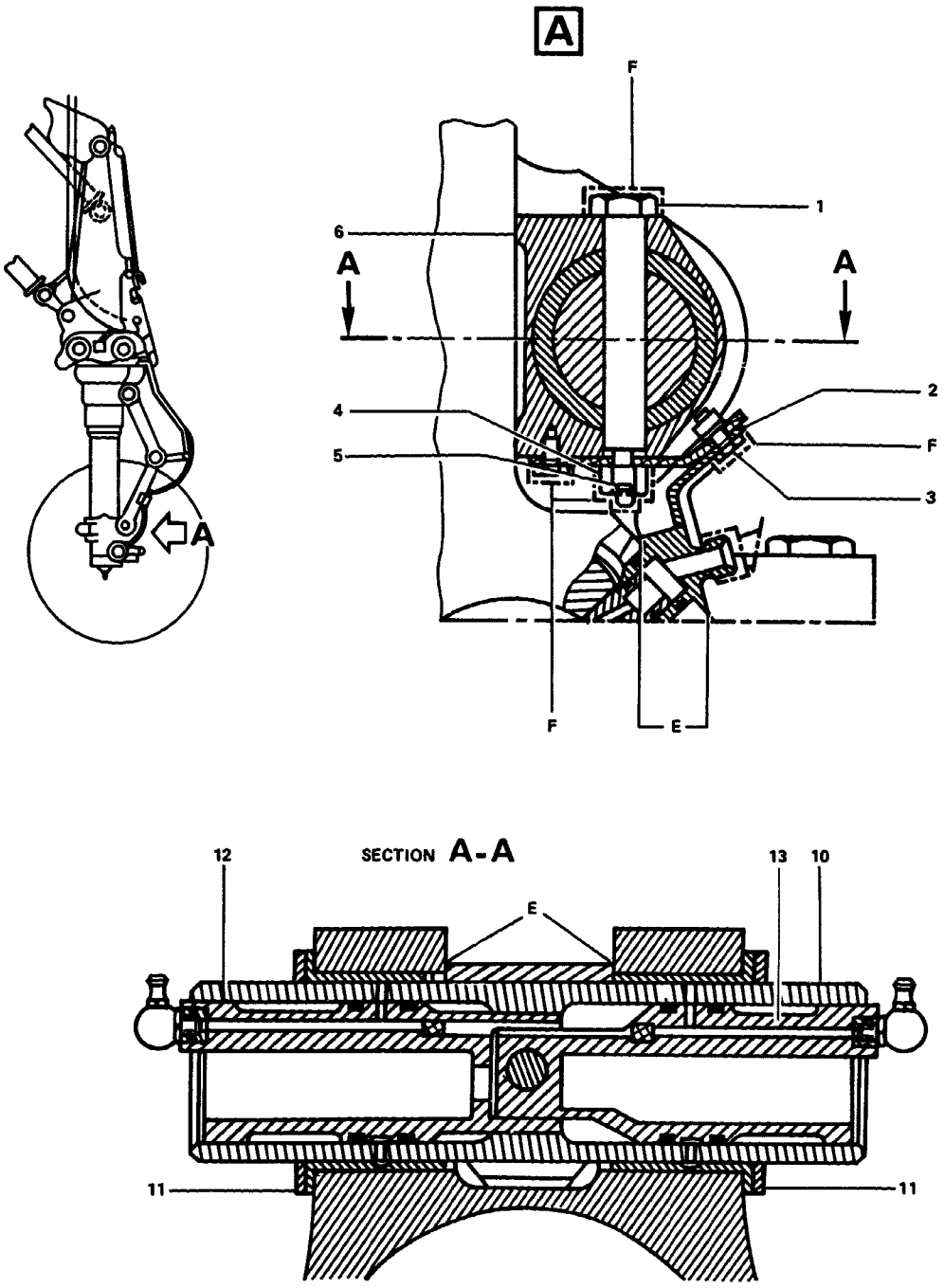
(j)Remove shock absorber-to-torque link retaining pin.
(a)Cut and remove lockwire, remove nut (4).
(b)Drive out and remove pin (1).
(k)Jack up the aircraft until wheels clear ground (Ref. 07-11-00, P. Block 1).
(l)Remove nose gear wheels (Ref. 12-37-32, P. Block 1).
(m)Remove nose gear tachometers (Ref. 32-42-66, P. Block 401).
(n)Remove cable passage flange mounting (2) located under the torque link lower hinge : screw (3).
(p)Remove electrical wiring from wheel axle.
(q)Release shock absorber nitrogen pressure by actuating valve located at absorber upper end.
(a)Remove protective cap.
(b)Gradually unscrew the valve control nut one and a half turns maximum.

(2)Removal
(Ref. Fig. 401)
(Ref. Fig. 402)
(a)Remove shock absorber-to-torque link connecting pin.
1 With a soft drift drive out and remove lubrication inserts (12) and (13).
2 Remove pin (10) with extractor C47596, remove and retain washers (11) and stop (6).
3 Move torque link upwards and attach it to shock strut.
(b)Disconnect self-aligning spherical bearing from shock strut.
1 Fold back tabs, then remove screws (16) and fitting (21) ; remove and retain locking plate (17).
2 Extract bushes (15) with extractor C47262.
(c)Disconnect shock absorber from shock strut.
1 Lifting aircraft so as to obtain a clearance of 2280 mm (89.75 in.) between bottom of rotating tube and ground.
- Position lifting trolley under shock absorber.
- Open charging valve, and fully compress shock absorber 450 mm (17.72 in.).
2 Cut and remove lockwire, remove screws (25) and valve unit (26). Remove and retain washer (27) and seal (28).
3 Cut and remove lockwire fold back tabs of lockwashers (30) remove screws (29), remove and retain lock washers (30), then support assembly (24) and stop plate (34).
4 Unscrew and remove nut (31) with adapter C47263, remove and retain washers (32) and (33).

R NOTE : ALS part 1 item, nut must be replaced by a new one every time
R it is removed from the upper rod.

WARNING : STEADY SHOCK ABSORBER THROUGHOUT REMOVAL OPERATION.

5 Gradually lower lifting trolley and remove shock absorber. Firstly, disengage self-aligning spherical bearing (18) by moving it



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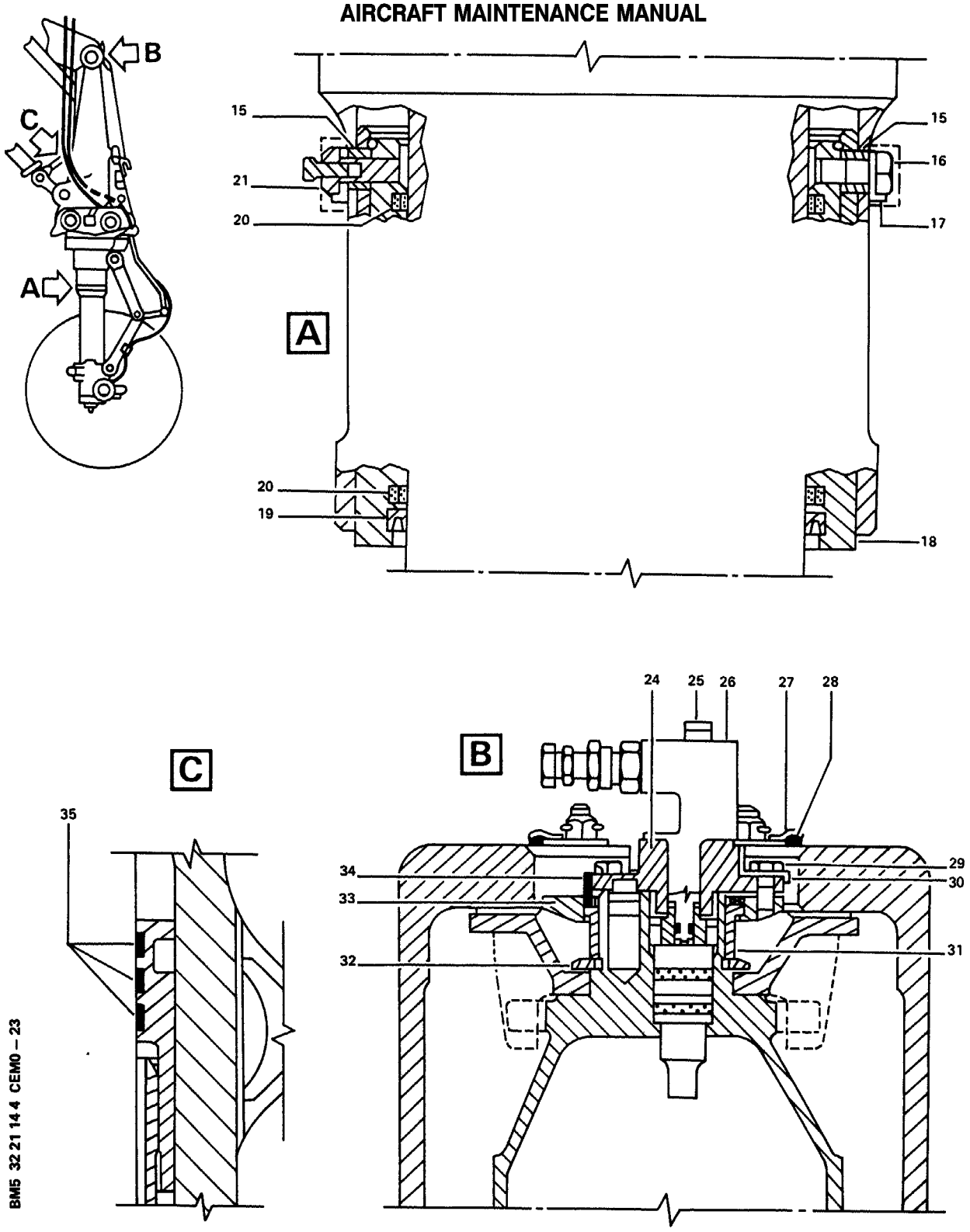
Nose Gear - Shock Absorber-to-Torque Link Connection
Figure 401



Nose Gear - Shock Absorber Attachment Fittings
Figure 402

downwards.
Take care not to hit inside of shock strut with the sliding tube.

(3)Preparation of replacement component
(a)Depreserve the replacement shock absorber by removing the external protective coverings.
Clean with material No.11-002 and dry with filtered compressed air.
NOTE : Clean the attachment hardware with Material No. 11-004A and dry with filtered compressed air.
Apply a light coat of Material No. 05-047 to the threads of all nuts, screws, bolts and pins.
(b)Clean all removed components with material No.11-002 and more specifically :
- The hinge yokes and bores of the torque link
- The lower bearing taken from the removed shock absorber.
- The inner bearing, the cup and its bore at the top of the shock strut.
(c)Check for oxydation, pitting and flaking on component chromed surfaces.
(d)Check the condition of scraper (19), and of friction pad (35).
(e)Discard and replace seals (20).

(4)Installation (Ref. Fig. 401, 402)
(a)Smear the lower spherical bearing bore with Material No. 04-004 or Material No. 04-022.
NOTE : Do not mix Material No. 04-004 with Material No. 04-022.
You can use Material No. 04-022 as an alternative to Material No. 04-004. Clean and degrease the parts before you use Material No. 04-022.
(b)Carefully slide self-aligning spherical bearing over shock absorber (with scraper side towards the bottom), until top of bearing is level with lower chromed section shoulder.
(c)Install and steady shock absorber on lifting trolley.
(d)Insert shock absorber into shock strut.
1 Release nitrogen pressure and then fully compress shock absorber.
2 Install guide cone C47227 at top of shock absorber.
3 Using lifting trolley gradually insert the shock absorber without damaging inside of shock strut. When shock absorber approaches shock strut lower self-aligning bearing, center and engage it.
(e)Attach self-aligning spherical bearing to shock strut.
1 Position the bearing so as to align holes in bearing with holes in shock strut.
2 Position bushes (15).
3 Position locking plate (17), install screws (16), fitting (21) equipped with its set screw. TORQUE screws to between 1 and 1.1 m.daN (88.47 and 97.32 lbf.in).
4 Safety screws and fitting by folding back tabs of locking plate (17) on flats.
(f)Connect shock absorber to shock strut.
1 Continue to insert shock absorber until upper rod lugs engage in shock strut notches (pivot if necessary)
NOTE : The shock absorber is stopped when the end of its rod is located at 19 mm (0.748 in.) from the top of the shock strut.
2 Remove guide cone C47227.

3 Install washer (32), (33) and install nut (31) using adaptor C47263.
TORQUE nut (31) to between 10 and 12 m.daN (73.77 and 88.52 lbf.ft).
R NOTE : ALS part 1 item, nut must be replaced by a new one every time
R it is removed from the upper rod.
4 Install support assembly (24), lockwashers (30), stop plate (34) and screws (29). TORQUE screws (29) to between 3 and 3.5 N.m. (2.21 and 2.58 lbf.ft).
Safety screws by folding back tabs of lockwashers (30).
NOTE : If the stop plate tooth is imposible to be engaged into a slot of the nut, reduce successively the washer (32) thickness by steps of 2% of mm and try assy.
5 Install seal (28), washer (27) and valve block (26), then secure with screws (25).
TORQUE screws (25) to between 0.6 and 0.7 m.daN (55.08 and 61.93 lbf.in). Wirelock screws.
NOTE : The charging valve must be towards the front of the aircraft.
CAUTION : REMOVE TROLLEY FROM UNDER SHOCK ABSORBER.
6 Slightly and gradually charge the shock absorber and check its descent.
7 Make certain that zone under aircraft is clear and lower the aircraft to wheels clear of ground configuration.

(g)Connect torque link to the shock absorber
1 Coat pin (10) with Material No. 04-004 or Material No. 04-022 to facilitate its installation.
NOTE : Do not mix Material No. 04-004 with Material No. 04-022. You can use Material No. 04-022 as an alternative to Material No. 04-004. Clean and degrease the parts before you use Material No. 04-022.
2 Install stop (6) and open out torque links. Engage link on shock absorber yoke with washers (11).
3 Line up bores of yokes and of stop (6), and insert pin (10).
4 Insert lubrication inserts (12) and (13), and align holes for pin (1) in stop (6), pin (10) and lubrication inserts (12) and (13) with locating pin C47621.

(h)Fill shock absorber if the latter has been installed as a result of a minor operation (Ref. 12-12-32, P. Block 1). In the case of a new or shop-repaired shock absorber, it is filled with hydraulic fluid (Material No. 02-001 or No. 02-004 or No. 02-006).
(j)Charge shock absorber (Ref. 12-12-32, P. Block 1).
(k)Install tachometer generator wiring.
(l)Install and attach cable passage flange mounting (2) by means of screw (3).
(m)Install nose gear tachometer generators (Ref. 32-42-66, P. Block 401).
(n)Grease shock strut lower bearing and torque link lower hinge with Material No. 04-004 or Material No. 04-022.
NOTE : Do not mix Material No. 04-004 with Material No. 04-022. You can use Material No. 04-022 as an alternative to Material No. 04-004. Clean and degrease the parts before you use Material No. 04-022.
(p)Install nose gear wheels (Ref. 12-37-32, P. Block 1).

(5)Test

Carry out a landing gear Normal extension/retraction functional test (Ref. 32-31-00, P. Block 501).

(6)Close-up

(a)Make certain that working area is clean and clear of tools and miscellaneous items of equipment.

WARNING : MAKE CERTAIN AREA UNDER THE AIRCRAFT IS CLEAR

(b)Lower the aircraft onto its wheels (Ref. 07-11-00, P. Block 1).

(c)Install shock absorber/torque link retaining pin.

1 Insert pin (1).

2 Install and TORQUE nut (4) to between 3 and 3.4 m.daN (22.13 and 25.08 lbf.ft.). Safety nut with cotter pin (5).

(d)Smear material No.09-002 on areas marked E. Smear material No.09-001 on areas marked F.

(e)Pressurize Green hydraulic reservoir (Ref. 29-14-00, P. Block 301).

(f)Remove safety clip and tag and close circuit breaker 1GC

WARNING : MAKE CERTAIN THAT DOOR TRAVEL RANGES ARE CLEAR

(g)Close landing gear main doors (Ref. 32-12-11, P. Block 301) or 32-22-11, P. Block 301).

(h)Remove warning notices.

(j)Close access doors, remove access platform and safety barriers.

(k)Remove all ground handling and maintenance equipment, standard and special tools, together with ground power and replenishing equipment, all access equipment and miscellaneous items.

3. Towing Fitting

A. Equipment and Materials

ITEM	DESIGNATION
(1)Material No. 04-004	Common Greases (Ref. 20-31-00)
R (2)Material No. 04-022	Common Greases (Ref. 20-31-00)
R (3)Material No. 05-047	Special Materials (Ref. 20-31-00)
R (4)Material No. 09-001	Sealants (Ref. 20-31-00)
R (5)Material No. 09-002	Sealants (Ref. 20-31-00)
R (6)Material No. 11-002	Cleaning Agents (Ref. 20-31-00)
R (7)Material No. 11-004A	Cleaning Agents (Ref. 20-31-00)

B. Procedure

(1)Job set-up

(a)On panel 4VU

- make certain that landing gear control lever is in DOWN position and prohibit its operation by displaying a warning notice.

(b)Between First Officer's and Third Occupant's seats.

- make certain that Free Fall extension control handle is in Normal position.

(2)Removal

(Ref. Fig. 403)

NOTE : With a spatula, remove rubber coating from parts to be removed taking care not to damage surface finish.

(a)Remove cotter pins (1), nuts (2) and washers (3).

(b)Remove pins (5).

(c)Remove towing fitting (4).

(3)Preparation of Replacement Component

(a)Depreserve the replacement components by removing the external protective coverings. Clean with Material No. 11-002 and dry with filtered compressed air.

NOTE : Clean the attachment hardware with Material No. 11-004A and dry with filtered compressed air.
Apply a light coat of Material No. 05-047 to the threads of all nuts, screws, bolts and pins.

R (b)Lightly coat pins with Material No. 04-004 or Material No. 04-022 to
R facilitate installation.
R NOTE : Do not mix Material No. 04-004 with Material No. 04-022.
R You can use Material No. 04-022 as an alternative to
R Material No. 04-004. Clean and degrease the parts before you use
R Material No. 04-022.

(4)Installation

(a)Position towing fitting and line up bores.

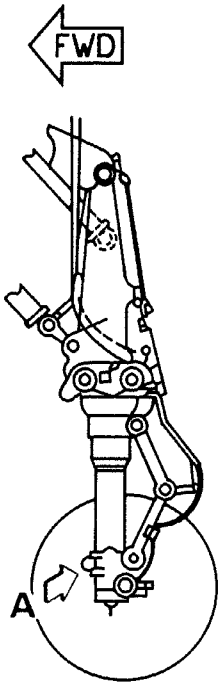
(b)Insert pins (5).

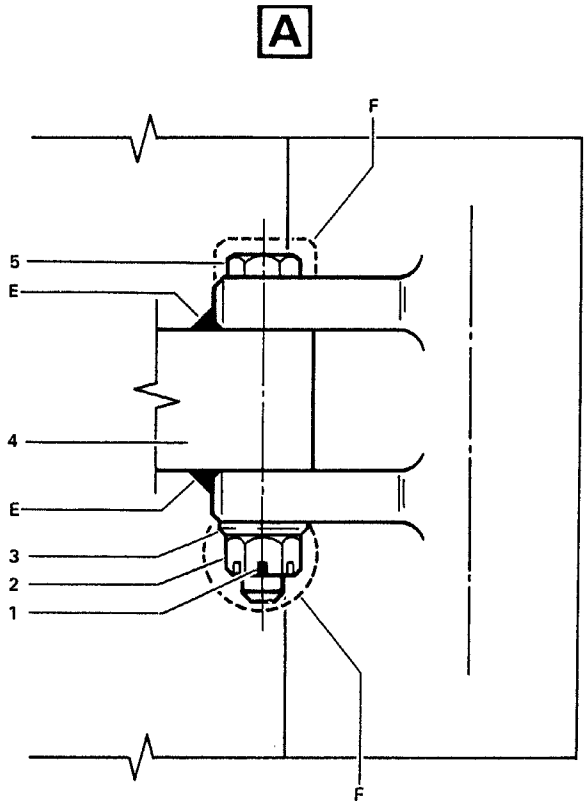
(c)Install washers (3), tighten nuts and TORQUE to between 1 and 1.5 m.daN (7.3 and 11 lbf. ft). Safety nuts with cotter pins (1).

(5)Test

Not applicable.

(6)Close-up





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Nose Gear-Towing Fitting
Figure 403

(a)Smear Material No. 09-002 on areas marked E and Material No. 09-001 on areas marked F.
(b)Make certain that working area is clean and clear of tools and miscellaneous items of equipment.

4. Removal/Installation of Nose Landing Gear Bushed Stop

A. General

On adjustment of nose landing gear proximity detectors (Ref. 32-00-00, P. Block 401), dimension S between targets and sensors must be checked after wear of bushed stop has been taken up by raising rotating tube until in contact with stop.

This procedure can be used as an alternative to replacing landing gear leg provided that dimension S is greater than 3 mm (0.118 in.).

B. Equipment and Materials

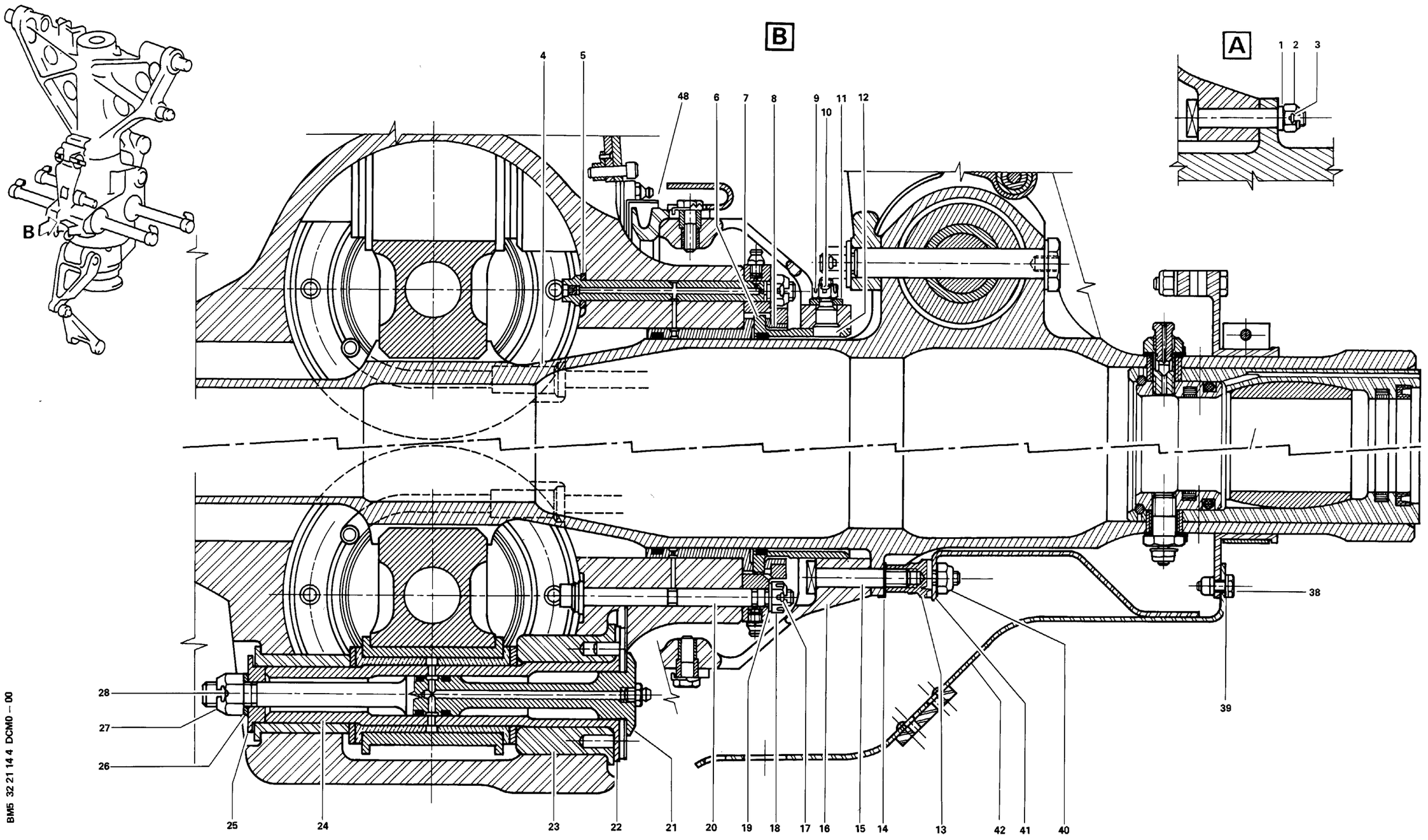
	ITEM	DESIGNATION
	(1)7-11-001	Aircraft Lifting Hydraulic Jack (Under Forward Fuselage)
	(2)7-11-002	Aircraft Lifting Hydraulic Jack (Under Wing)
	(3)7-11-003	Safety Stay STA211 (FR85)
	(4)74690	Positioning Tool
	(5)Material No. 04-004	Common Greases (Ref. 20-31-00)
R	(6)Material No. 04-022	Common Greases (Ref. 20-31-00)
R	(7)Material No. 09-001	Sealants (Ref. 20-31-00)
R	(8)Material No. 09-002	Sealants (Ref. 20-31-00)
R	(9)Material No. 11-002	Cleaning Agents (Ref. 20-31-00)
	Referenced Procedure	
	- 32-00-00, P. Block 401	Proximity Detector(s) - General
	- 32-51-00, P. Block 401	Steering - Removal/Installation
	- 32-51-00, P. Block 501	Steering - Adjustment/Test

C. Job Set-Up

(1)Take all necessary precautions to prevent the risk of accidents.
Jack up aircraft.
(2)Remove shock absorber (Ref. Para. 1.).
(3)Remove steering control cable (Ref. 32-51-00, P. Block 401).

D. Procedure

(1)Removal of bushed stop.
(a)Positioning of eccentrics (24).
(Ref. Fig. 404)
1 Remove cotter pins (28)
2 Remove nuts (27) and washers (26) retaining eccentrics (24).
3 Remove bolts (21) and retain rings (25) and cover (48).
4 Remove equipped blanking plugs (22). Using setting wrench P/N 74690, turn eccentrics (24) in the reverse direction of adjustment to place them in their initial installation position.
NOTE : The list of the red arrows on eccentrics are used to show the neutral position. They enable to have maximum clearance with the racks.
5 Install equipped blanking plugs (22), bolts (21), rings (25), washers (26) and nuts (27). Do not tighten nuts.



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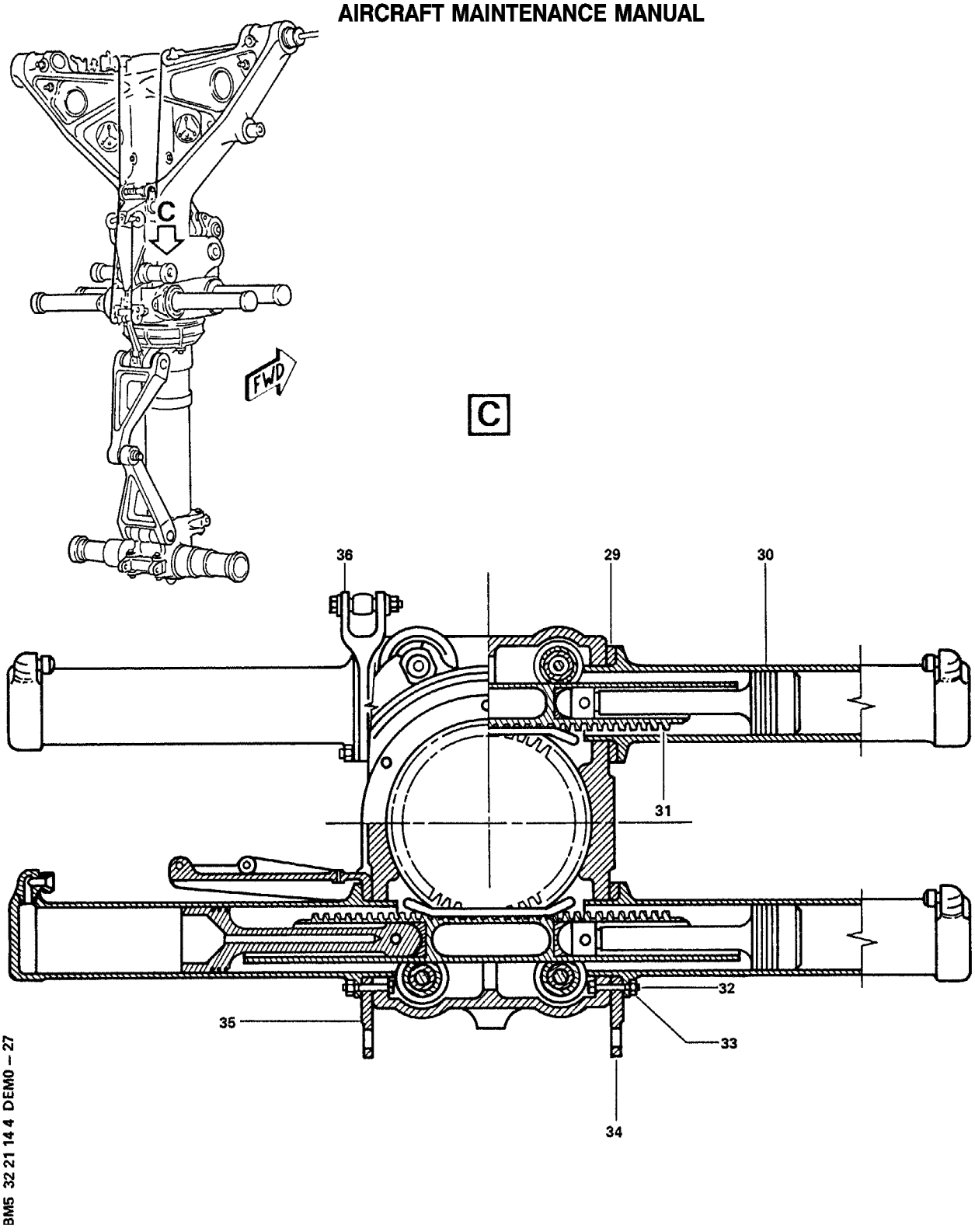
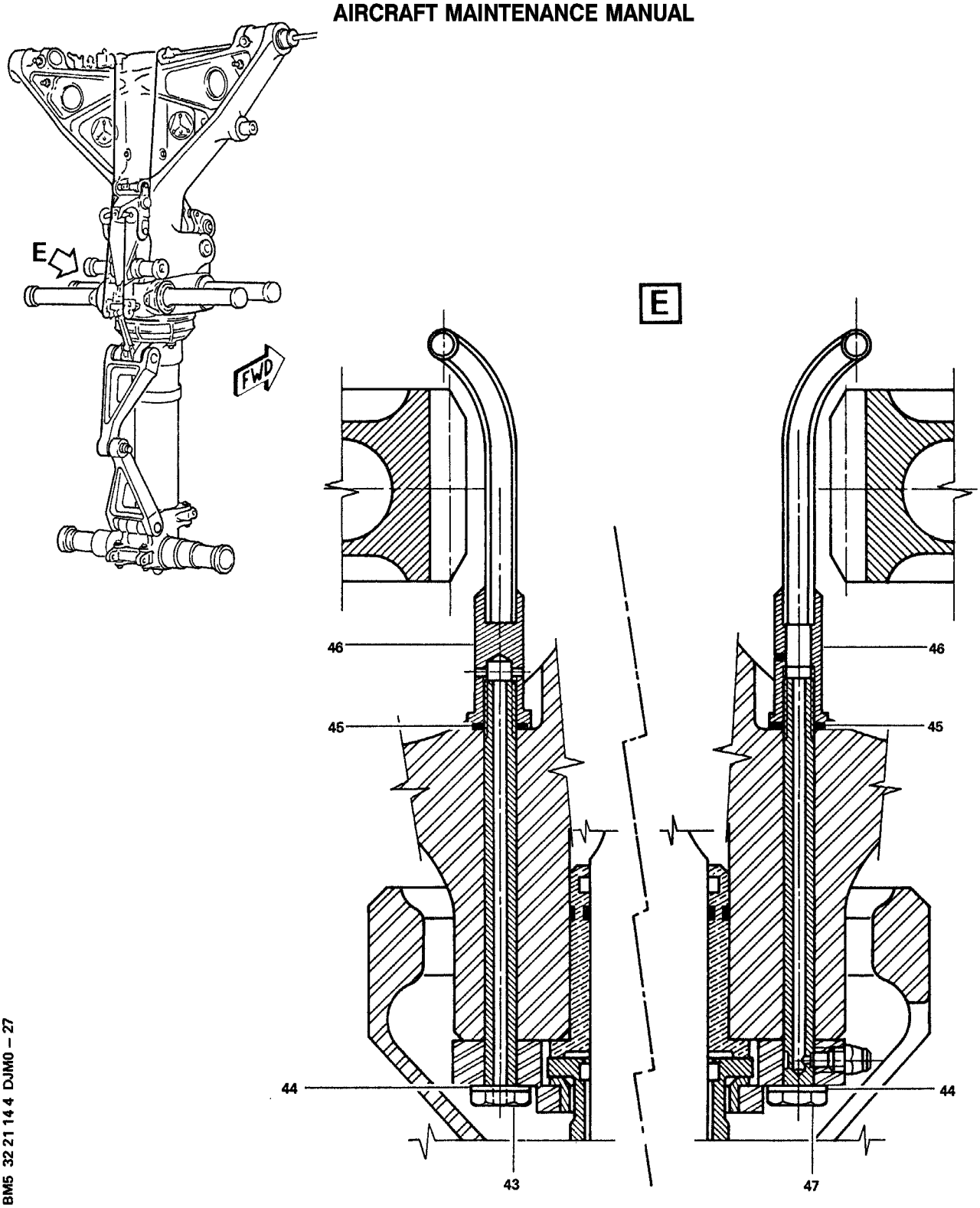
Bushed Stop
Figure 404

(b)Removal of actuating cylinders (30)
(Ref. Fig. 405)
NOTE : Perform this operation using a container below cylinder to recover fluid.
1 Unsafety, remove and discard nuts (32). Retain washers (33), terminal lug and lock washer.
2 Retain washer (29), attachment fitting (34) and brackets (7) and (8).
(c)Removal of bushed rotating tube (4) (Ref. Fig. 404)
1 Remove screws (38) and retain washers (39).
2 Remove nuts (40), retain lock washers (41) and cover assembly (42).
3 Remove bushes (13), unsafety and retain lock washers. Retain lock washers (14).
4 Remove cotter pins (3), remove the two nuts (2) located 40° apart (Ref. Detail A) on either side of bushes (13). Retain the two washers (1).
5 Carefully extract tube assy (4) taking care not to damage strut walls.
(d)Removal of pulley (16) and bushed stop (7).
1 Removal of pulley assembly (16)
- Remove cotter pins (10).
- Remove and retain nuts (9). Retain washers (5), bolts (12) and stop (6).
2 Removal of bushed stop (7).
- Remove cotter pins (17).
- Remove and retain nuts (18). Retain washers (19), bolts (20) and washers (5).
- Loosen bolts (43) and (47). Retain lubricating inserts (46), seals (45), washers (44), bushed stop (7) and stop (6).
NOTE : Check removed components for general condition and, if required, apply protective treatment.
Upper bearing inspection is not required.
3 Clean all parts with Material No. 11-002.
(2)Installation of bushed stop
(a)Installation of pulley assembly (Ref. Fig. 404)
(Ref. Fig. 406)
1 Successively position stop (6) and bushed stop (7) fitted with new ring (8).
2 Install washers (19) and nuts (18). Tighten and safety nuts with cotter pins (17).
3 Position and engage bolts (43) and (47) fitted with washers (44), smear Material No. 09-001 on nuts and bolts and on periphery of junction between stop (7) and tube assy (4).
(Ref. Fig. 406)
4 Install lubricating inserts (46) fitted with seals (45).
5 TORQUE bolts (43) and (47) to between 7 and 8 N.m (5.2 and 5.9 lbf.ft).
6 Installation of pulley (16). (Ref. Fig. 404)
- Position pulley assy (16) onto stop (7).
- Insert bolts (12) and install washers (11) and nuts (9). TORQUE nuts to between 5 and 6 N.m (3.7 and 4.4 lbf.ft). Safety nuts with cotter pins (10).



Steering Actuating Cylinders
Figure 405



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Lubricating Inserts
Figure 406

NOTE : On installation, lubricate bolts (30), (40), (45) and stop (7) and end of ring (8) with grease Material No. 04-004 or Material No. 04-022.

NOTE : Do not mix Material No. 04-004 with Material No. 04-022. You can use Material No. 04-022 as an alternative to Material No. 04-004. Clean and degrease the parts before you use Material No. 04-022.

(b)Installation of bushed rotating tube (4). (Ref. Fig. 404)

1 Check that rack ends protrude by the same value on either side of strut.

2 Carefully insert rotating tube assy (7) into strut taking care not to hit strut walls.

3 Position washers (1) and lock washers (14). (Ref. Fig. 404)

4 Install bushes (13), nuts (2) and safety with lock washers (14) and cotter pins (3). Safety with washers (14).

5 Make certain that bushed rotating tube rotates freely without any undue friction.

(c)Adjustment of racks (31) (Ref. Fig. 404, 405)

1 Install tube (4) in such a position that yoke is facing toward the front within the plane of strut (neutral position).

2 Adjustment of racks (31) (Ref. Fig. 407)

- Using wrench P/N 74690 and starting from neutral position, apply an even rotary motion to eccentrics (24) in the direction indicated until simultaneously in contact with points A, B, C and D (Ref. Fig. 407)
- After contact is established, act on eccentrics in the direction indicated until the value of one hole in reached.
- Symmetrically lock eccentrics (24) by means of blanking plug assemblies in a manner most appropriate to arrangement of holes in bearings (23) and eccentrics (24).
- Perform same adjustments for the other rack.
- Make certain that rotating tube (4) rotates freely without any undue friction.

NOTE : If rotating tube has already been installed on aircraft, adjustment of rack is to be performed at 60° with respect to its initial position. On completion of adjustment, return tube to initial position.

- Install covers, bolts (21) and position rings (25), washers (26), brackets (1) (2).
  Install, tighten and safety nuts (27) with cotter pins (28).

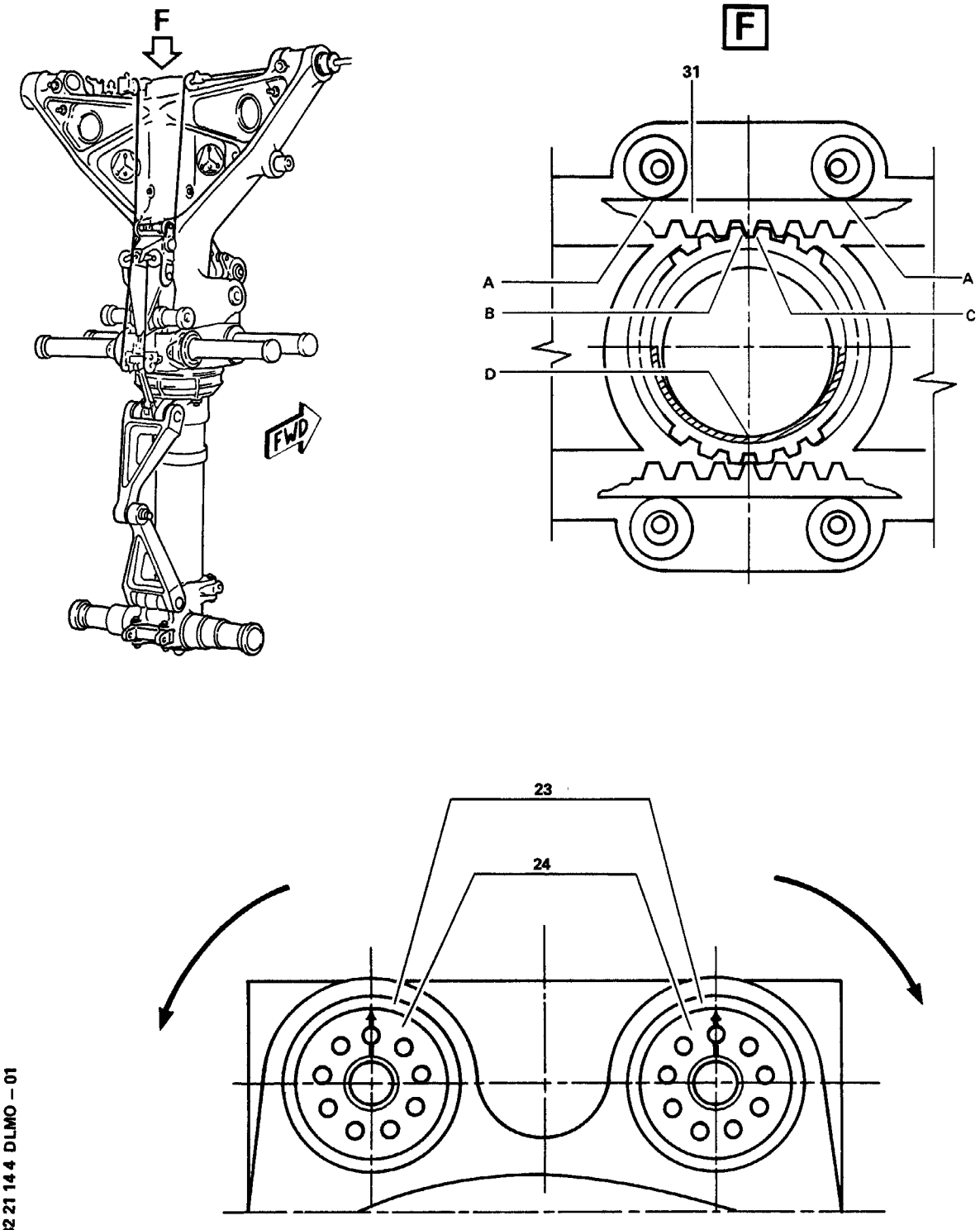
(d)Installation of cover assy (42).

- Install cover assy (42), lock washers (41), tighten nuts (40) and safety.
- Install washers (39) and bolts (38).

(e)Installation of steering cylinders (30) (Ref. Fig. 405).

1 Position attachment fitting (34), brackets (35) and (36) and washer (29).

2 Install and insert cylinders (30) while immobilizing rotating tube (4).



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Nose Landing Gear Racks
Figure 407

3 Install washers (33), terminal lug and lock washer, then install a new nut (32) and TORQUE to between 30 and 34 N.m. (22.1 and 25.1 lbf.ft).

4 Make certain that rotating tube (4) rotates correctly up to an angle of 96° in both directions and that no undue friction is observed.

(f)Smear Material No. 09-001 and 09-002 on attachment hardware.

E. Close-Up.

(1)Installation of shock absorber (Ref. Para. 1.B.(4)).

(2)Adjustment of detectors (Ref. 32-00-00, P. Block 401).

(3)Installation of steering control cable (Ref. 32-51-00, P. Block 401).

(4)Carry-out a landing gear normal extension/retraction test (Ref. 32-31-00, P. Block 501).

(5)Perform hydraulic steering tests (Ref. 32-51-00, P. Block 501).

(6)Allow aircraft to rest onto its wheels.

5. Removal/Installation of Nose Gear Shock Absorber Upper Cam Seals and Packings

A. General

The purpose of this procedure is to restore a nose gear shock absorber removed for leakage at upper cam between sliding tube and plunger tube, to operating condition by replacement of seals and packings.

B. Equipment and Materials

	ITEM	DESIGNATION
	(1)	Lifting Trolley
	(2)A46524	Spatula
	(3)	Strap
R	(4)Material No. 02-001	Hydraulic Fluids (Ref. 20-31-00)
	or	
R	Material No. 02-004	Hydraulic Fluids (Ref. 20-31-00)
R	or	
R	Material No. 02-006	Hydraulic Fluids (Ref. 20-31-00)
	(5)Material No. 05-047	Special Materials (Ref. 20-31-00)
	(6)Material No. 06-001	Lubricants (Ref. 20-31-00)
	(7)Material No. 09-004	Sealants (Ref. 20-31-00)
	(8)Material No. 11-002	Cleaning Agents (Ref. 20-31-00)
	(9)Material No. 11-004A	Cleaning Agents (Ref. 20-31-00)
	Referenced Procedures	
	- 07-12-00, P. Block 1	Jacking for Wheel Change
	- 12-12-32, P. Block 1	Landing Gear
	- 32-22-11, P. Block 301	Nose Gear, Main Door - (Ground Door(s) Opening)

C. Job Set-Up

(1)Jack up aircraft until wheels are clear of ground (Ref. 07-12-00, P. Block 1).
(2)Depressurize Green hydraulic system.
(3)Manually open nose gear main doors and take all necessary safety precautions to avoid any accident (Ref, 32-22-11, P. Block 301 and Para. 1).
(4)Remove shock absorber (Ref. Para. 1).
(5)The shock absorber shall remain on the handling trolley, in vertical position throughout the procedure.
(6)Make certain that tools and surrounding area are clean.
(7)Take all necessary precautions to avoid damaging chromium-plated surfaces on plunger tube (5) and sliding tube (6).
(Ref. Fig. 408)

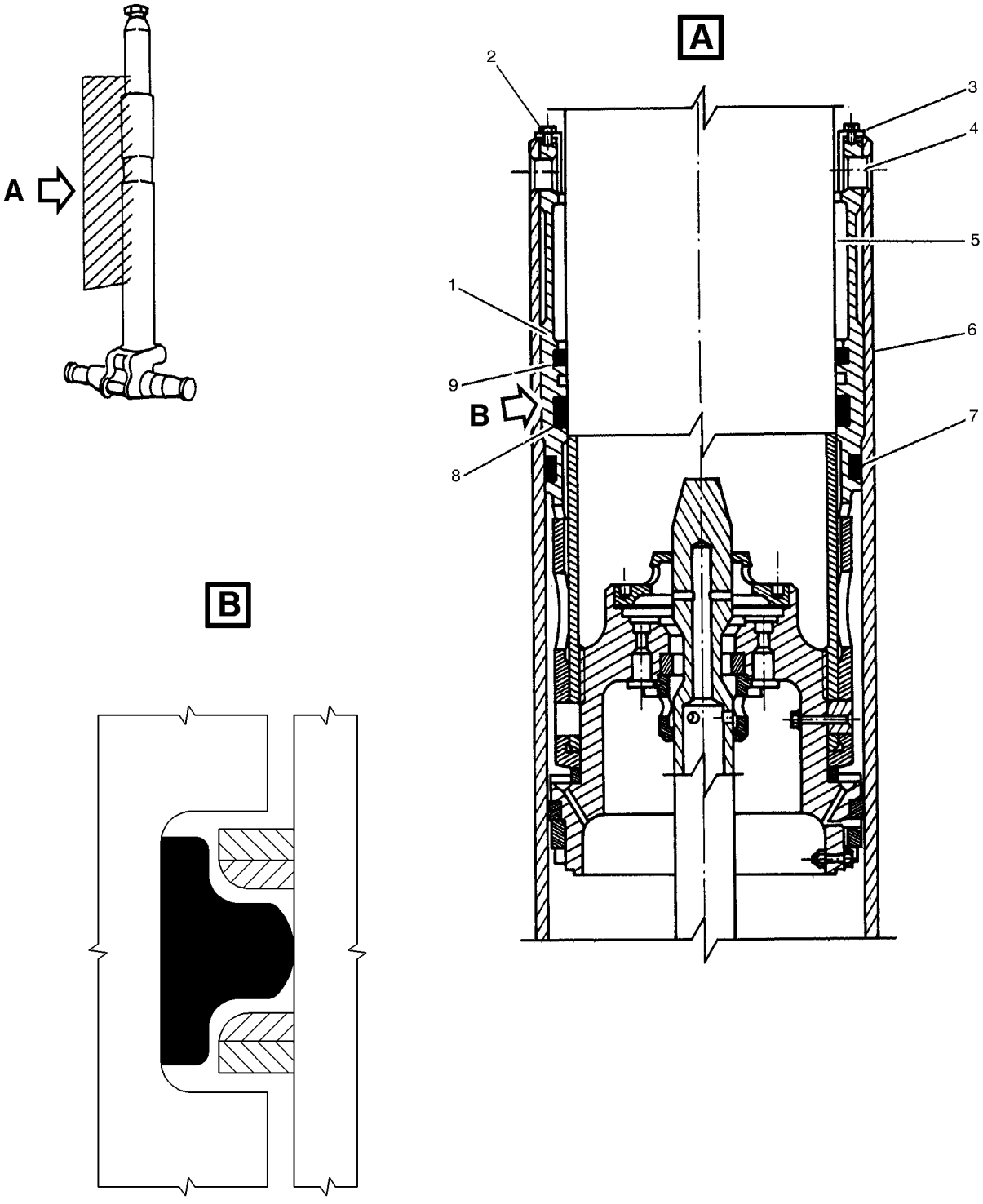
D. Removal

(1)General

WARNING : PRIOR TO COMMENCING WORK MAKE CERTAIN THAT SHOCK ABSORBER IS FULLY DEPRESSURIZED.

(2)Disassembly of shock absorber (Ref. Fig. 408)

(a)Shock absorber is in vertical position on handling trolley ; sliding tube against internal mechanical stop (Ref. Para.1.).



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Nose Gear Shock Absorber Upper Cam
Figure 408

R

(b)Remove rubber sealant from upper cam (1). Unsafety and remove bolts (2), remove lock washers.
(c)Remove bush (3) and stop pins (4).
(d)Secure shock absorber to handling trolley with a strap at level of wheel axle.
(e)Remove plunger tube (5).
(f)Place plunger tube (5) in horizontal position on two wooden V-blocks then remove lifting equipment.
(g)Remove upper cam (1) from plunger tube (5).
(h)Using spatula, remove seals and packings from upper cam (1).

E. Cleaning

Clean removed parts with Material No. 11-002 then dry with filtered compressed air.

NOTE : Clean the attachment hardware with Material No. 11-004A and dry with filtered compressed air.
Apply a light coat of Material No. 05-047 to the threads of all nuts, screws, bolts and pins.

F. Installation (Ref. Fig. 408)

(1)General

(a)Parts must be perfectly clean.
(b)Install packing (7), seal (8) and scraper (9) on upper cam (1).
1 Carefully clean grooves for packings and scraper.
2 Dry fit packings using spatula, taking care to stretch them as little as possible.
3 Fit packings against edges of groove opposing direction of installation of the part concerned.
4 Install scraper (9).
(c)Lubrication of parts
1 Lightly lubricate surface of parts on which seals slide or are in
R contact with hydraulic fluid Material No. 02-001 or No. 02-004 or
R No. 02-006, to facilitate installation.

(2)Assembly of shock absorber (Ref. Fig. 408)

NOTE : Make certain that hydraulic fluid in sliding tube is clean and in correct condition (no color-change or pollution).

(a)Using lifting equipment, engage plunger tube (5) in vertical position fully down in sliding tube (6).
(b)Introduce and orient upper cam (1) in bore of sliding tube (6) so that 40 mm Dia. holes are in the same position as the wheel axle.
NOTE : Spray a 5 to 10 micron (19.7 to 39.4 microinch) thick film of Material No. 06-001 on largest diameter of upper cam in contact with bore of sliding tube (6).
(c)Install stop pins (4)
(d)Install bush (3) and secure with bolts (2) fitted with lock washers.
(e)TORQUE bolts (2) to between 3 and 4 Nm (2.2 and 3 lbf.ft.).
(f)Bend tabs of lock washers.
(g)Coat heads of bolts with sealant Material No.09-004.
(h)Perform leakage test
Pressurize shock absorber with nitrogen through servicing valve and allow to extend slowly then clean sliding tube (6) with a clean cloth.

1 Adjust pressure to 5 bars (72.5 psi), allow to stabilize then check with a pressure gage that there is no pressure drop over a period of three minutes.
2 Perform the same test at 20 bars (580 psi).
3 Gradually release pressure and leave the servicing valve control nut in open position.

(j)In the event of leakage proceed again with removal/installation of upper cam (1). (Ref. Para. D.(2)).

G. Close-up

(1)Install shock absorber (Ref. Para. 1).
(2)Service shock absorber (filling and charging) with aircraft on jacks (Ref. 12-12-32, P. Block 1).
(3)Carry-out a landing gear normal extension/retraction test (Ref. 32-31-00, P. Block 501).
(4)Lower aircraft onto its wheels.
(5)Close nose gear main doors.

NOSE GEAR SHOCK ABSORBER - INSPECTION/CHECK

WARNING : CHECK THAT THE LANDING GEAR GROUND SAFETIES INCLUDING WHEEL CHOCKS ARE IN POSITION.

BEFORE APPLYING OR RELIEVING HYDRAULIC SYSTEM PRESSURE, MAKE CERTAIN THAT THE TRAVEL RANGES OF THE CONTROL SURFACES ARE CLEAR.

BEFORE PRESSURIZING HYDRAULIC SYSTEMS, CHECK THAT ALL CONTROLS ARE SET TO CORRESPOND WITH THE ACTUAL POSITION OF THE SERVICES THEY OPERATE.

1. Check of Nose Gear Shock Absorber Charging Pressure

A. Reasons for the Job

(1)To check shock absorber charging pressure, aircraft on its wheels

(2)To check shock absorber charging pressure, aircraft on jacks.

B. Equipment and Materials

ITEM	DESIGNATION
(1)	Pressure Gage : 0 to 50 bars (0 to 725 psi) or 0 to 100 bars (0 to 1450 psi)
(2)	Warning Notices
(3)	Access Platform : 2 m (6 ft. 7 in.)
(4)	Safety Barriers
Referenced Procedures	
- 12-12-32, P. Block 1	Landing Gear - Replenishing and Charging
- 12-14-32, P. Block 1	Landing Gear - Inflating and Charging
- 32-21-14, P. Block 401	Nose Gear Shock Absorber
- 32-22-11, P. Block 301	Nose Gear Main Door - (Ground Door(s) Opening)

C. Procedure

(1)Job set-up

(a)On panel 4VU

- make certain that landing gear control lever is in **DOWN** position and prohibit its operation by displaying a warning notice.

(b)Between First Officer's and Third Occupant's seats

- make certain that landing gear Free Fall extension control handle is in Normal position.

(c)Position access platforms

(d)Open nose gear doors (Ref. 32-22-11, P. Block 301).

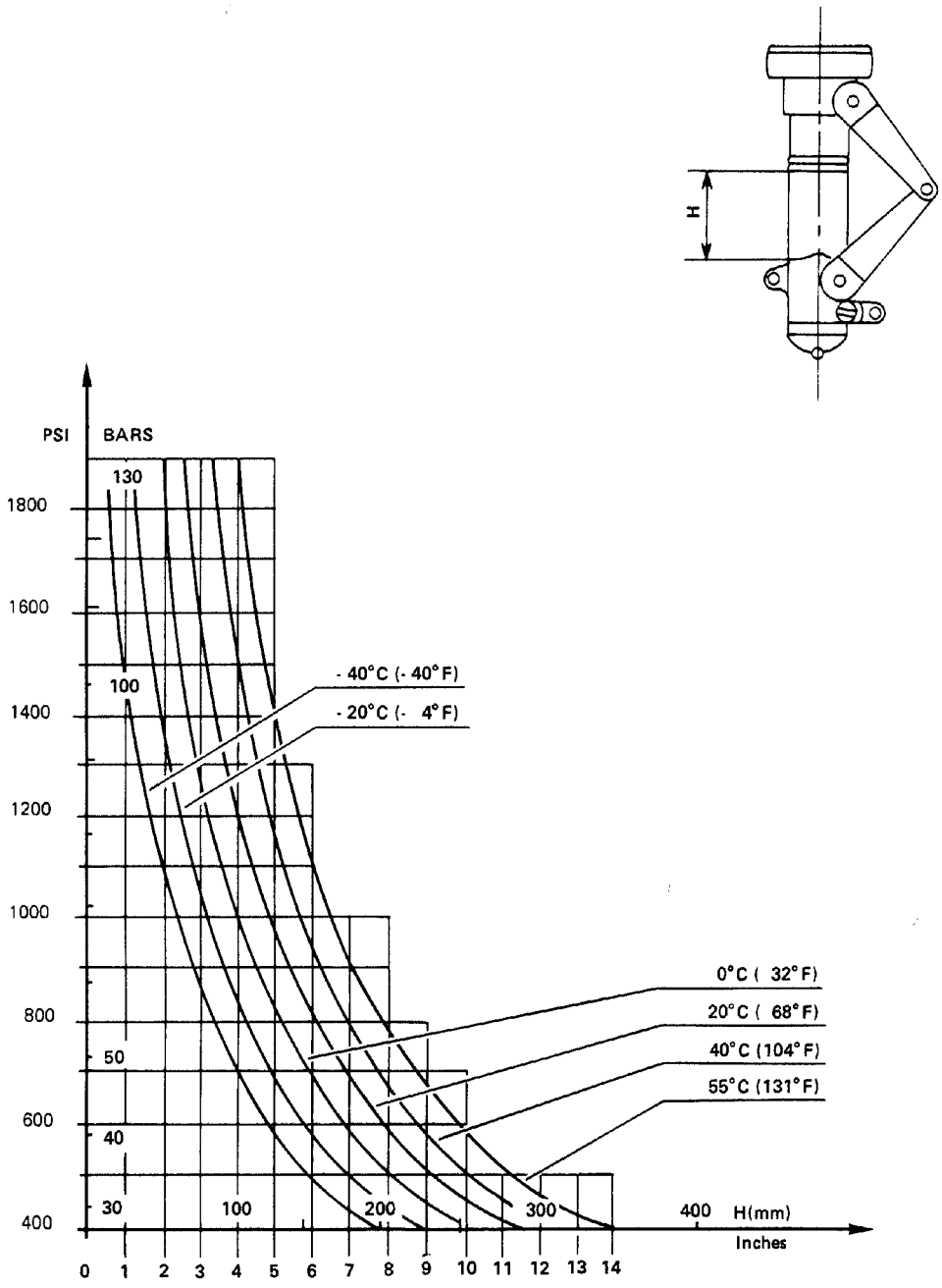
WARNING : WHEN DOORS ARE OPEN MAKE CERTAIN THAT SAFETY COLLARS ARE POSITIONED ON DOOR ACTUATING CYLINDERS.

(2)Charging pressure check with aircraft on its wheels (Ref. Fig. 601)

(a)Measure shock absorber sliding tube stand-out dimension "H" between the flat at top of torque link-to-shock absorber fork fitting and spherical bearing cage.

NOTE : Take into account a length margin of 5% concerning the obtained value.

(b)Connect a 0 to 100 bars (0 to 1450 psi) pressure gage to the valve.



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Nose Gear Shock Absorber - Charging Chart
Figure 601

Open the valve ; read pressure and refer to the chart.

(c)When pressuring reading versus dimension "H" is incorrect, the quantity of nitrogen or fluid may be considered to be incorrect.

- Check servicing valve for leakage

(Ref. Fig. 602)

- Check leak detector at spherical bearing located at base of shock strut for leakage as follows :
- Remove screw (1)
- Check leak detector for traces of hydraulic fluid
- If no trace of hydraulic fluid leakage is visible, perform a charging operation (Ref. 12-12-32, P. Block 1).
- If traces of hydraulic fluid leakage are visible, perform a complete servicing operation (replenishing and charging, Ref. 12-12-32, P. Block 1).

NOTE : If trace of fluid leakage persists, it is necessary to replace packings/seals on packing retainer (Ref. 32-21-14, P. Block 401, para. 3.).

- Install screw (1). Do not overtighten

(d)Disconnect pressure gage, close servicing valve. TORQUE to between 0.5 and 0.8 m.daN (44.235 to 70.776 lbf.in.)

(3)Check of charging pressure with aircraft on jacks

(a)Connect a 0 to 50 bars (0 to 725 psi) gage to the valve. Open valve ; read pressure

(b)If the valve leaks, slowly discharge shock absorber and replace valve. TORQUE to between 1 to 1.25 m.daN (88.47 to 110.59 lbf.in). If there is fluid leakage around valve, top up fluid and perform charging operations (Ref. 12-12-32, P. Block 1).

(c)If pressure is too high slowly discharge shock absorber until the correct pressure is obtained P = 16.5 bars (239 psi) for a temperature of 20°C ±5° (68°F ±9°) (Ref. 12-14-32, P. Block 1).

(d)If pressure is too low slowly charge the shock absorber (Ref. 12-14-32, P. Block 1).

(e)Disconnect pressure gage, close servicing valve. TORQUE to between 0.5 to 0.8 m.daN (44 to 71 lbf.in.)

(4)Close-up

(a)Make certain that working area is clean and clear of tools and miscellaneous items of equipment.

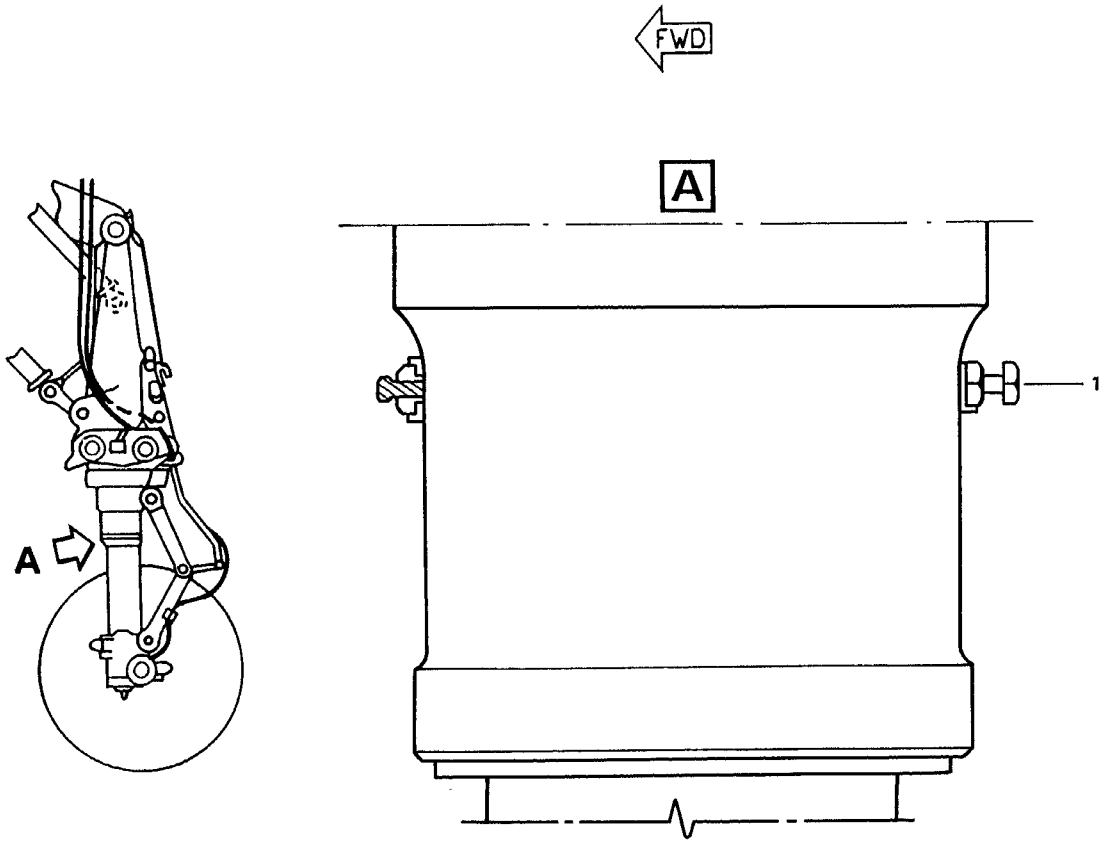
WARNING : MAKE CERTAIN THAT DOOR TRAVEL RANGES ARE CLEAR.

(b)Close landing gear doors (Ref. 32-22-11, P. Block 301).

(c)Remove warning notices.

(d)Remove access doors, remove access platform and safety barriers.

(e)Remove all ground handling and maintenance equipment standard and special tools, together with ground power and replenishing equipment, all access equipment and miscellaneous items.



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Nose Gear Shock Absorber - Leakage Detection
Figure 602

R

2. Check of Nose Gear Shock Absorber Charging Pressure and Fluid Level Without Lifting of A/C

A. General

Only two measurements at different aircraft weights are necessary to determine whether or not a shock absorber is correctly serviced.

B. Equipment and Materials

ITEM	DESIGNATION
Referenced Procedure	
- 12-12-32, P. Block 1	Landing Gear - Replenishing and Charging

C. Check

(1) A shock absorber is correctly serviced if shock absorber pressure and stand-out dimension curve representative of two measurements taken at different aircraft weights fall within the nominal range (shaded area). (Ref. Fig. 603)

(2) A shock absorber is incorrectly serviced if.

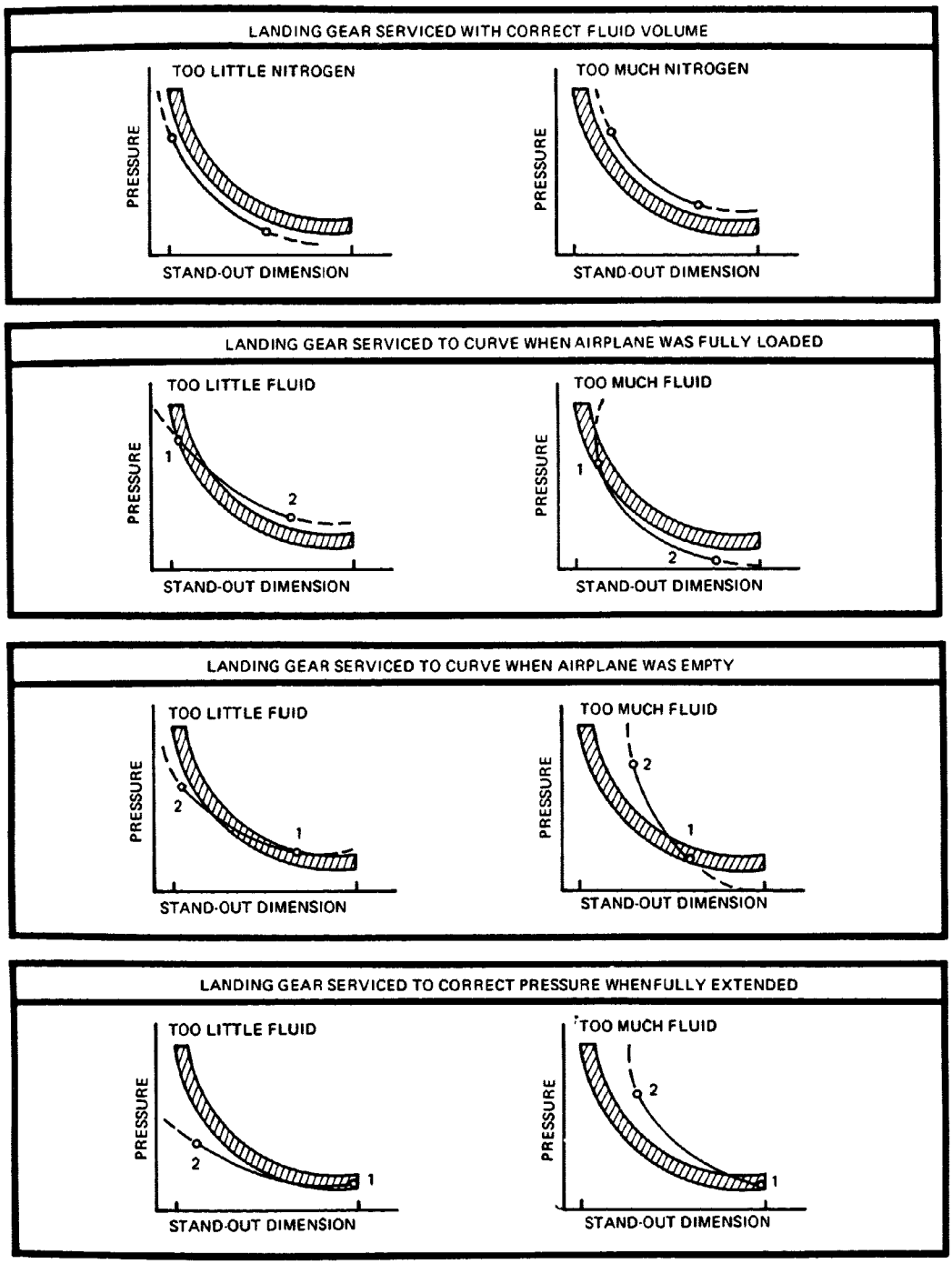
(a) Shock absorber curve is below but parallel to the nominal range
- fluid level correct but nitrogen volume insufficient.

(b) Shock absorber curve is above but parallel to the nominal range :
- fluid level correct but too much nitrogen.

(c) The shock absorber curve is not parallel to the nominal range :
- fluid level incorrect.

(3) Shock absorber incorrectly serviced

Fully service shock absorber (Ref. 12-12-32, P. Block 1).



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Shock Absorber Pressure Versus Stand-Out Dimension - Chart
Figure 603

3. Check of Nose Gear Shock Absorber Charging Pressure and Fluid Level With Lifting of A/C

A. General

Only two measurements at different shock absorber stand-out dimensions H (H being function of A/C weight) are necessary to determine whether or not a shock absorber is correctly serviced.
Shock absorber is correctly serviced if two measurements of shock absorber presure P and stand-out dimension H fall within the normal range (shaded area).
(Ref. Fig. 603)

B. Equipment and Materials

ITEM	DESIGNATION
(1)	Pressure Gages
Referenced Procedures	
- 07-11-00, P. Block 1	Jacking for Aircraft Maintenance Operations
- 12-12-32, P. Block 1	Landing Gear Replenishing

C. Procedure

(1)Job set-up

(a)Install pressure gages on nose gear shock absorbers.

(2)Check

NOTE : Aircraft wheels remain on ground throughout the following procedure.

(a)Take the first measurement with full weight of the aircraft on wheels and note stand-out dimension H and corresponding pressure P.

(b)To perform second measurement, lift the aircraft (Ref. 07-11-00, P. Block 1 to achieve shock absorber stand-out dimension H1 of approximately 300 mm (12in.) making certain that wheels remain on ground ; note corresponding pressure P1.

NOTE : Refer to 12-12-32, P. Block 1 to compare the measured values and the nose gear shock absorber charging chart curves.

(3)A shock absorber is incorrectly serviced if :

(a)Shock absorber curve is below but parallel to the nominal range
- fluid level correct but nitrogen volume insufficient

(b)Shock absorber curve is above but parallel to the nominal range
- fluid level correct but too much nitrogen

(c)Shock absorber curve is not parallel to the nominal range
- fluid volume is incorrect

(4)Shock absorber incorrectly serviced.
Fully service shock absorber (Ref. 12-12-32, P. Block 1)

D. Close Up

(1)Remove pressure gages.

(2)Lower the aircraft (Ref. 07-11-00, P. Block 1)

4. Permissible leakage on nose gear shock absorber

A. Reason for the Job
Define permissible limits in the event of abnormally compressed shock absorber.

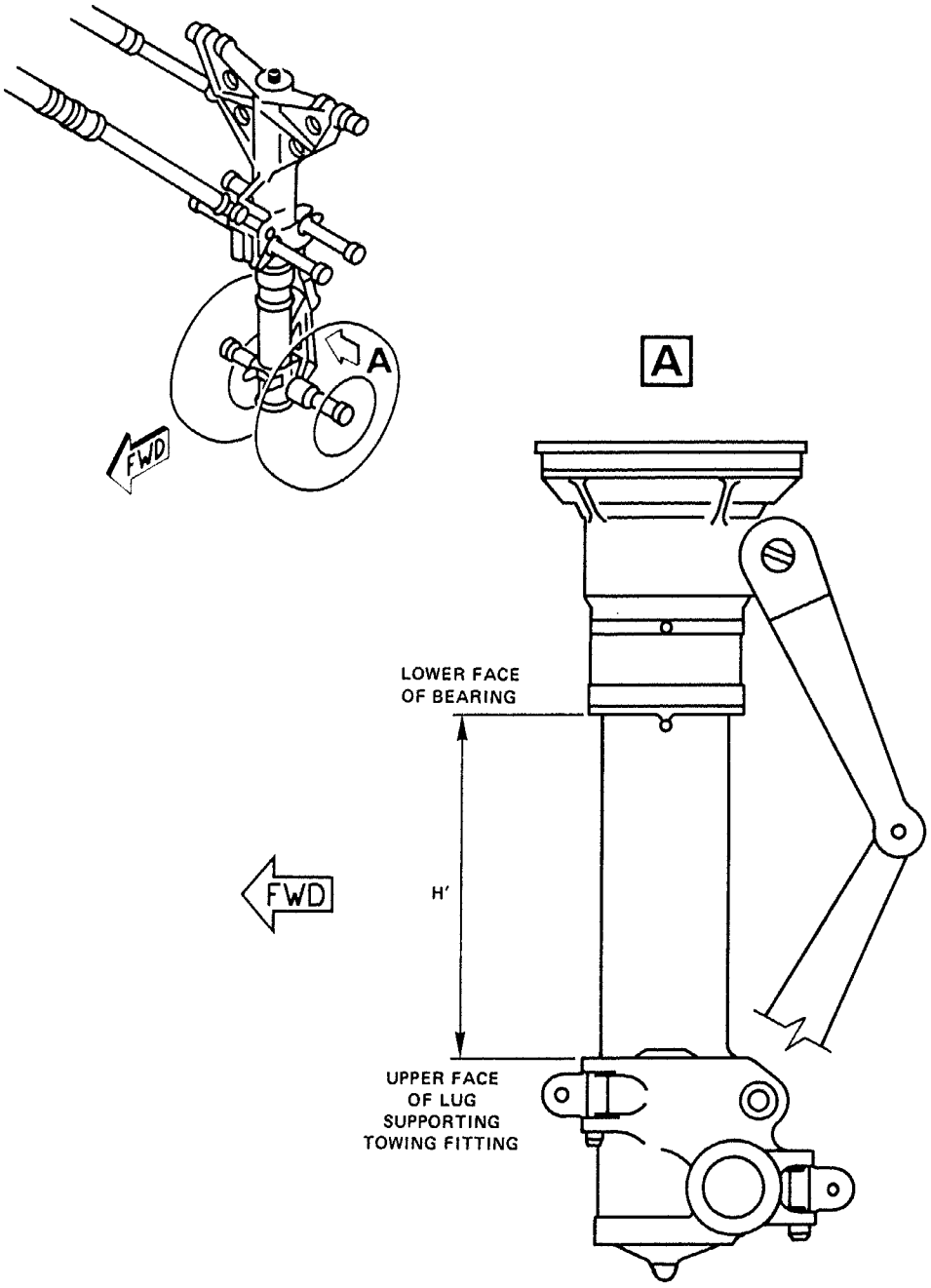
B. Equipment and Materials

ITEM	DESIGNATION
(1)	Pressure Gage 0 to 50 bars (0 to 725 psi) or 0 to 150 bars (0 to 2175 psi)
(2)	Access Platform 2 m or 2.6 m (6 ft. 7 in. or 8 ft. 7 in.)

C. Procedure
(1)Job set-up
(a)Position access platform
(2)Check (Ref. Fig. 604)
CONFIGURATION :
- P : shock absorber charging pressure measured with aircraft on its wheels
- H : compression dimension corresponding to P recorded on the pressure/compression curve (servicing chart) affixed on landing gear
- H' : actual compression dimension measured on shock absorber

NOTE : The limit values for H-H' are valid only on condition that fluid temperature remains greater than minus 30°C (-22°F) to avoid bottoming under static load.

(a)Measure H' : actual compression dimension measured on shock absorber
1 H-H' ≤ 5 mm (0.197 in.)
The shock absorber can remain in service
2 H-H' > 5 mm (0.197 in.)
Check for nitrogen leakage. If leakage is found at charging valve, discharge shock absorber and replace seal or charging valve.
R 3 If no nitrogen leakage is found and if 5mm (0.197 in.) < H-H' ≤ 15mm (0.590 in.), the shock absorber must be charged to obtain H value and then can remain in service as long as H-H' does not exceed 5mm (0.197 in.).
If H-H' exceeds again 5mm (0.197 in.), the shock absorber must be removed after return to the main base (see NOTE).
4 If no nitrogen leakage is found and if H-H' > 15mm (0.590 in.), the shock absorber must be replaced after return to the main base (see NOTE).
NOTE : LIMIT VALUES AND CAUTION TO PERFORM A RETURN TO THE MAIN BASE :
. If H-H' ≤ 30 mm (1.181 in.), return to the main base is allowed with no prior corrective action.
. If H-H' > 30 mm (1.181 in), charge shock absorber to cancel H-H' before returning to the base.
. When return to the main base has been allowed, the pilot shall endeavour to land at moderate vertical speed and avoid



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NLG Shock Absorber H' Value Measurement
Figure 604

heavy braking.

. Display a warning notice in the flight compartment giving to the pilot the instructions given in the above sentence.

NOSE GEAR TORQUE LINKS - REMOVAL/INSTALLATION

WARNING : CHECK THAT THE LANDING GEAR GROUND SAFETIES INCLUDING WHEEL CHOCKS ARE IN POSITION.

1. Equipment and Materials

ITEM	DESIGNATION
A. C47596	Extractor
B. C47647	Extractor
C. C47648	Adapter
D. C47621	Locating Pin
E. C47940	Extractor
F. C47943	Adapter
G. C47944	Retaining Wrench
H. 76907	Guide Cone
J. 76908	Block - Centering
K.	Wheel Chocks
L. Material No. 04-004	Common Greases (Ref. 20-31-00)
M. Material No. 04-022	Common Greases (Ref. 20-31-00)
N. Material No. 05-047	Special Materials (Ref. 20-31-00)
P. Material No. 09-001	Sealants (Ref. 20-31-00)
Q. Material No. 11-002	Cleaning Agents (Ref. 20-31-00)
R. Material No. 11-004A	Cleaning Agents (Ref. 20-31-00)
S. Material No. 09-008E	Sealant (Ref. 20-31-00)
Referenced Procedures	
- 07-12-00, P. Block 1	Jacking For Wheel Change
- 12-22-32, P. Block 1	Landing Gear Lubrication
- 12-37-32, P. Block 1	Wheel Replacement
- 32-00-00, P. Block 401	Landing Gear
- 32-21-15, P. Block 801	Nose Gear Torque Links

2. Procedure

A. Job Set-Up
(1)On panel 9VU
- make certain that **PARKING BRAKE** control handle is in Normal position
(2)Make certain that wheel chocks are in position at main gear wheels.
(3)Partially raise aircraft at nose gear by means of wheel changing jack (Ref. 07-12-00, P. Block 1).
(4)Remove one nose gear wheel (Ref. 12-37-32, P. Block 1)
(5)Disengage tachometer electrical harness from clamps on torque link lower arm and remove cable passage flange mounting located under the torque link lower hinge.

B. Removal
NOTE : Protective coatings shall be removed using a spatula to avoid damaging component surface finish.
(1)Remove electrical harness clamps on torque links.
R (2)Remove torque link center hinge shaft **VERSION 1.**

(Ref. Fig. 401)

(a)Remove shaft (12)

1 Remove grease nipple (9) and retain washer (10) for reinstallation.

2 Remove key washer (8) with extractor C47647.

3 Remove nut (7) with adaptor C47648 and retain washer (11) for reinstallation.

4 Drive out shaft (12) with a soft drift.
Retain bushes (15) and (6).

(b)Remove and discard lock washer (5) with tools 76907 and C47940.

(c)Hold shaft (14) with tool C47944 and remove nut (4) with tool C47943.

NOTE : ALS Part 1 item, nut must be replaced by a new one every time it is removed from the shaft. When the nut is temporarily removed and reinstalled for the purpose of performing maintenance outside a workshop, no replacement is required provided the nut removal and reinstallation are performed on the same aircraft MSN and neither the aircraft MSN nor the nut accumulates time in service during the period between the removal and reinstallation.

(d)Drive out shaft (14) with a plastic drift.

(e)Retain washers (3), (1) and (13) for reinstallation.

(3)Remove torque link center hinge shaft VERSION 2.

(Ref. Fig. 401)

(a)Remove grease nipple (9) and retain washer (10) for reinstallation.

(b)Remove and discard lock washer (5) with tools 76907 and C47940.

(c)Hold shaft (14) with tool C47944 and remove nut (4) with tool C47943.

NOTE : ALS Part 1 item, nut must be replaced by a new one every time it is removed from the shaft. When the nut is temporarily removed and reinstalled for the purpose of performing maintenance outside a workshop, no replacement is required provided the nut removal and reinstallation are performed on the same aircraft MSN and neither the aircraft MSN nor the nut accumulates time in service during the period between the removal and reinstallation.

(4)Remove torque link lower arm.

(Ref. Fig. 402)

(a)Remove cotter pin (21).

(b)Remove nut (22).

(c)Remove pin (20).

(d)Using a soft drift, drive out lubrication inserts (28) and (30).

(e)Remove shaft (29) with extractor C47596 and retain the two washers (25), stop (26) and torque link lower arm.

(5)Remove torque link upper arm.

(Ref. Fig. 403)

(a)Remove proximity sensor mounting from torque link.

1 Remove cotter pin and remove nut (47).

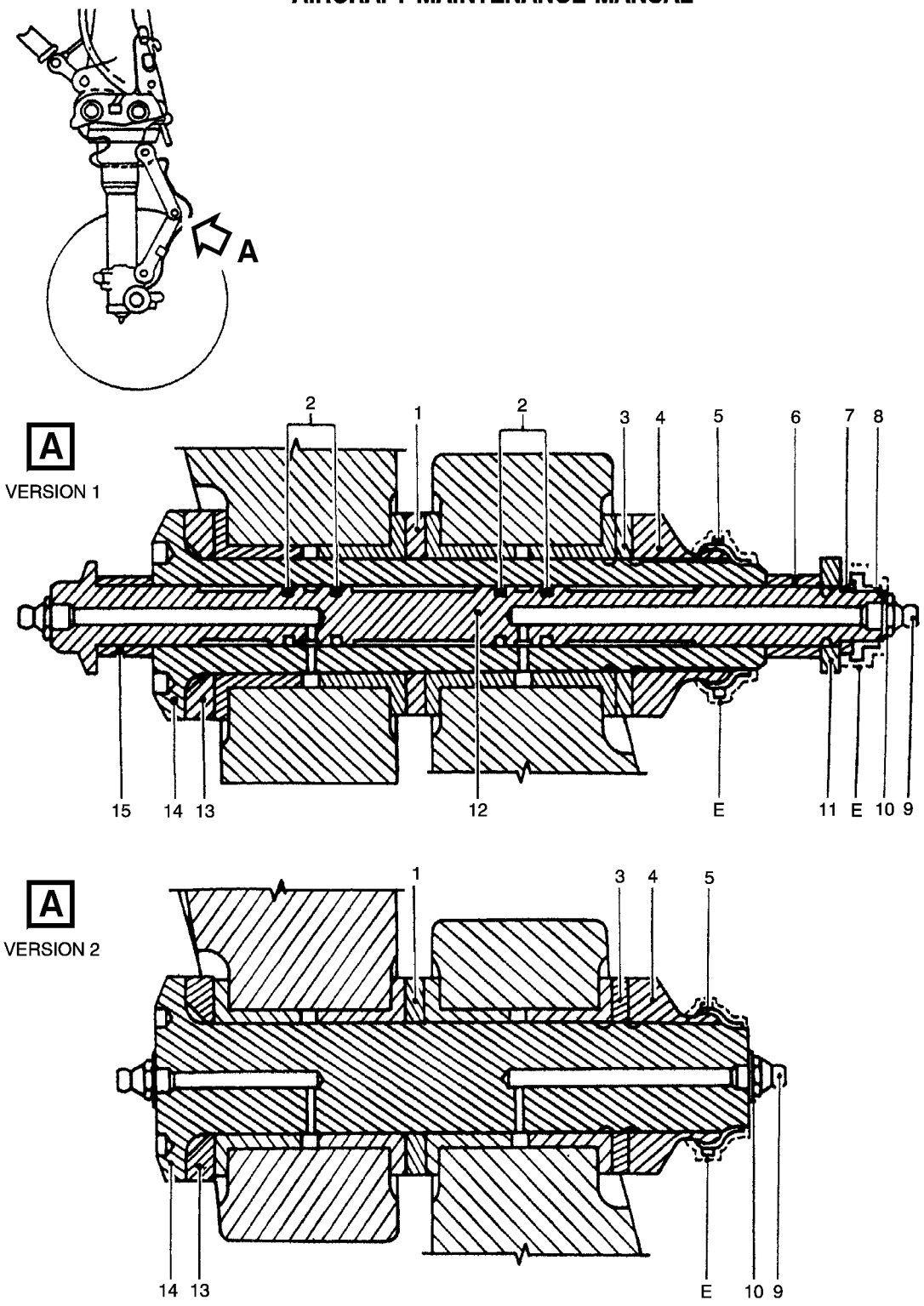
2 Remove and retain washer (48), drive out bolt (40) and disengage link (49).

3 Remove cotter pin and remove nut (45).

4 Remove and retain washer (43), fork end (41) and shim (42).

(b)Remove torque link.

1 Remove cotter pin (36).



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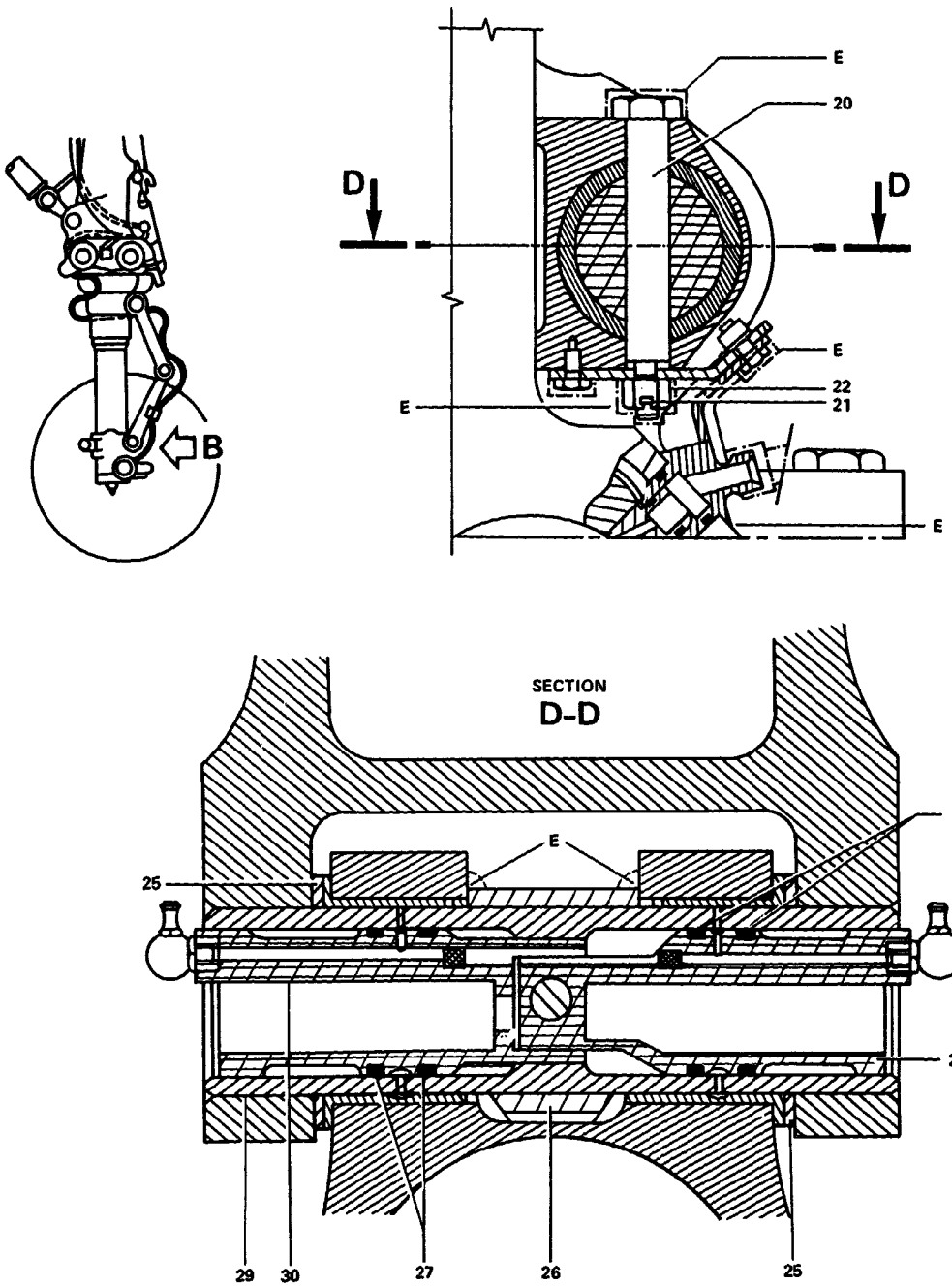
Nose Gear Torque Links - Center Hinge
Figure 401

R



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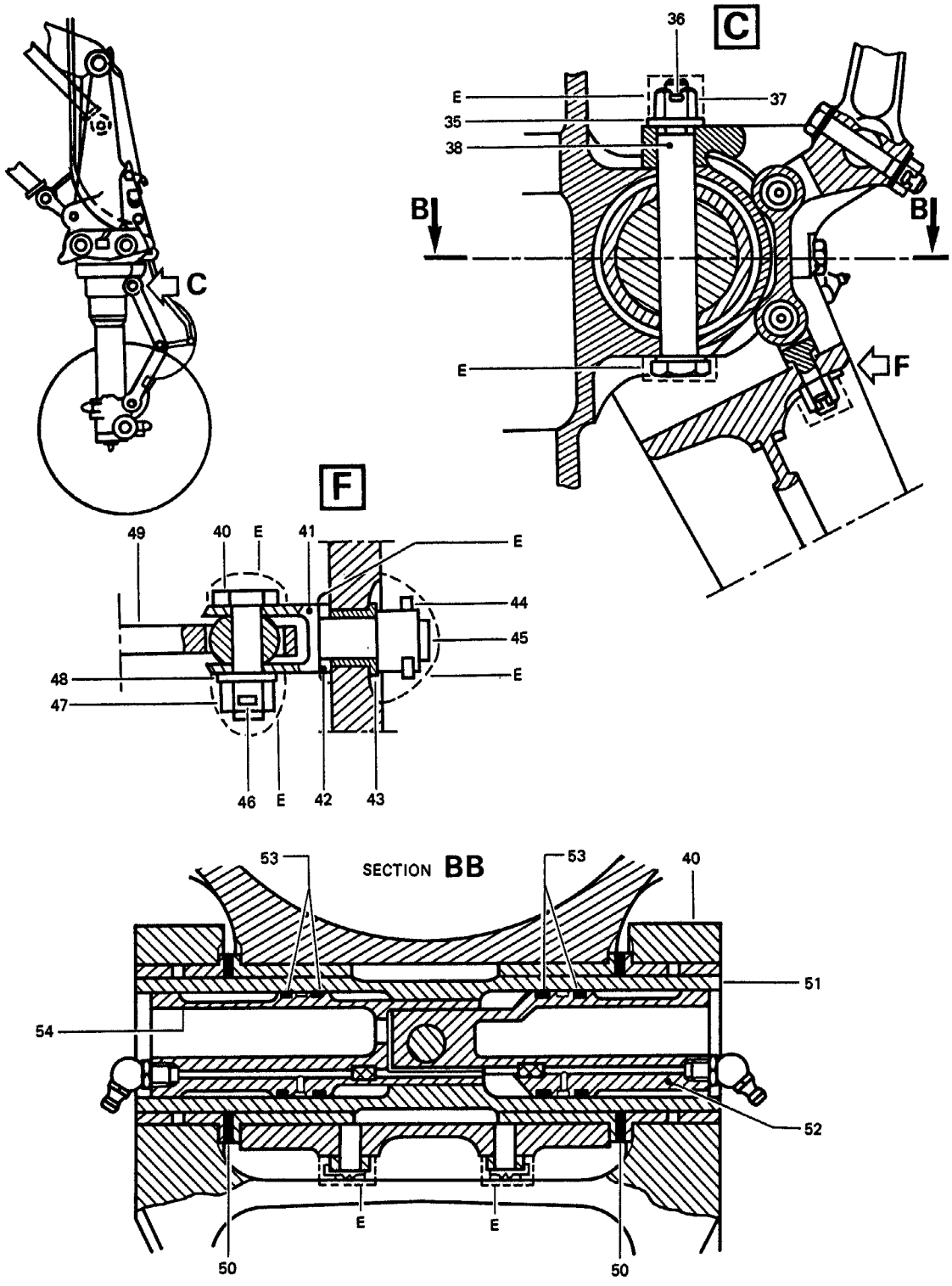
Nose Gear Torque Links - Lower Hinge
Figure 402



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Nose Gear Torque Links - Upper Hinge
Figure 403

2 Remove nut (37).
3 Remove and retain washer (35) for reinstallation.
4 Remove pin (38).
5 Using a soft drift, drive out lubrication inserts (52) and (54).
6 Remove shaft (51) with extractor C47596, retain washers (50), remove torque link upper arm and proximity sensor mounting.

C. Preparation of Replacement Component
(1)Depreserve replacement torque links by removing outer protections. Clean with material No. 11-002 and dry with filtered compressed air.
NOTE : Clean the attachment hardware with Material No. 11-004A and dry with filtered compressed air.
Apply a light coat of Material No. 05-047 to the threads of all nuts, screws, bolts and pins.
(2)On new torque links, install grease nipples and washers taken from removed torque links (check for correct condition).
(3)Clean all parts to be installed with material No. 11-002, and dry with filtered compressed air.
In particular clean :
(a)Torque link fork end bushes.
(b)Shafts and attach fittings on shock strut and shock absorber.
(4)Make certain that parts to be used for installation of the torque links are in correct condition. (Replace any damaged parts).
Check for :
(a)Corrosion, flaking, scoring especially on chromed surfaces.
(b)Fractures, incipient cracks, impact damage.
(5)Systematically replace seals (27) and (53).
(6)Lubricate bushes and shafts to facilitate their installation with Material No. 04-004 or Material No. 04-022.
NOTE : Do not mix Material No. 04-004 with Material No. 04-022.
You can use Material No. 04-022 as an alternative to Material No. 04-004. Clean and degrease the parts before you use Material No. 04-022.

D. Installation
NOTE : - Make certain that torque links are installed right way up
- If necessary, adjust plays J1, J2 and J3 (Ref. 32-21-15, P. Block 801).
(1)Install torque link upper hinge shaft.
(a)Install torque link upper arm.
1 Position torque link upper arm at attach fitting on chock strut, install washers (50) align bores and install shaft (51) taking care to align attach holes in shaft and shock strut using locating pin C47621.
2 Install lubrication inserts (52) and (54) and align attach holes using locating pin C47621.
3 Install pin (38) and washer (35).
4 Install nut (37), TORQUE to between 3.5 and 4.1 m.daN (25.838 and 30.247 lbf.ft.). Safety with cotter pin (36).
(b)Install proximity sensor mounting on torque link.

1 Install shim (42) and fork end (41).
2 Position link (49) and install bolt (40) and washer (48).
3 Install nut (47), TORQUE to between 0.85 and 1 m.daN (6.268 and 7.377 lbf.ft.). Safety with cotter pin (46).
4 Install washer (43) and nut (45), TORQUE to between 1.7 and 2 m.daN (12.538 and 14.751 lbf.ft.). Safety with cotter pin (44).
5 Apply Sealant Material No. 09-008E on the nut (45).

(2)Install torque link lower arm.
(a)Position stop (26) and washers (25) while aligning bores in torque link and shock absorber integral pivot housing.
(b)Install shaft (29) and correctly position with locating pin C47621.
(c)Install lubrication inserts (30) and (28) and align all attach holes with locating pin C47621.
(d)Install pin (20).
(e)Install nut (22), TORQUE to between 3.5 and 4.1 m.daN (25.838 and 30.247 lbf.ft.). Safety with cotter pin (21).

(3)Install center hinge shaft.
(a)Connect torque link upper and lower arms.
1 Align torque link bores and install washers (3), (1) and (13) and shaft (14).
2 Install nut (4), TORQUE to 5 m.daN (36.88 lbf.ft.) with adapter C47943 while holding shaft (14) with wrench C47944.

NOTE : ALS Part 1 item, nut must be replaced by a new one every time it is removed from the shaft. When the nut is temporarily removed and reinstalled for the purpose of performing maintenance outside a workshop, no replacement is required provided the nut's removal and reinstallation are performed on the same aircraft MSN and neither the aircraft MSN nor the nut accumulates time in service during the period between the removal and reinstallation.

3 Back off nut (4) then tighten to obtain total clearance of between 0.02 and 0.1 mm (.00078 and 0.0039 in.).
4 Install lock washer (5) with tools 76907 and 76908.
(b)Install grease nipple (9) equipped with washer (10).

(4)Install electrical harness clamps on torque links.

E. Test
Not applicable.

F. Close-Up
(1)Check that proximity detectors are correctly adjusted (Ref. 32-00-00, P. Block 401).
(2)Attach tachometer electrical harness and install cable passage flange mounting.
(3)Lubricate torque link hinges with Material No. 04-004 or Material No. 04-022 (Ref. 12-22-32, P. Block 1).
(4)Install nose gear wheel removed (Ref. 12-37-32, P. Block 1).
(5)Lower the aircraft onto its wheels and remove wheel changing jack (Ref. 07-12-00, P. Block 1).
(6)Apply sealant material No. 09-001 to areas identified E.
(7)Make certain that working area is clean and clear of tools and

miscellaneous items of equipment.

NOSE GEAR TORQUE LINKS - APPROVED REPAIRS

WARNING : CHECK THAT LANDING GEAR GROUND SAFETIES INCLUDING WHEEL CHOCKS ARE IN POSITION.

1. Reason for the Job
Check and take-up of end play on nose gear torque links.

2. Equipment and Materials

ITEM	DESIGNATION
A.	Feeler Gages

R

Referenced Procedures

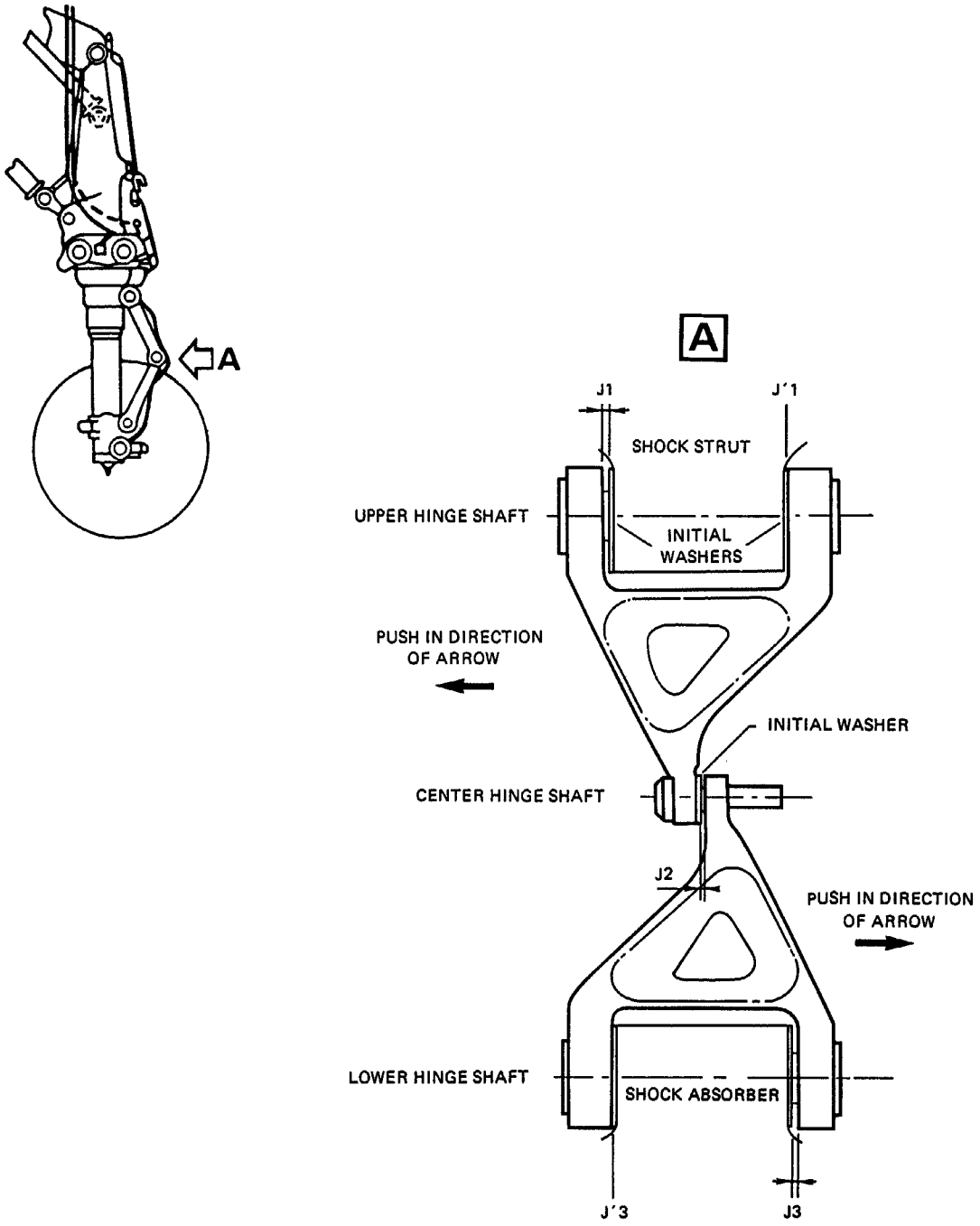
- 07-11-00, P. Block 1	Jacking for Aircraft Maintenance Operations
- 12-22-32, P. Block 1	Landing Gear Lubrication
- 32-21-15, P. Block 401	Nose Gear Torque Links

3. Procedure

A. Job Set-Up
(1)On panel 4VU,
- make certain that landing gear control lever is in Down position
(2)Between First Officer's and Third Occupant's seats
- make certain that landing gear Free Fall extension control handle is in Normal position.
(3)Jack up aircraft forward jacking point, main gear wheels on the ground (Ref. 07-11-00, P. Block 1).

B. Check of End Play
(Ref. Fig. 801)
(1)Measure play at J2 by using calibrated shims.
(2)Remove nut from center hinge shaft (Ref. 32-21-15, P. Block 401).
(3)Push torque links laterally, in direction indicated by arrows, to stop position so that overall play is located at J1 and J3.
(4)Measure play at J1 and J3
Permissible play
(a)Upper hinge shaft : 0.3 mm (0.0118 in.)
(b)Center hinge shaft : 0.2 mm (0.0078 in.)
(c)Lower hinge shaft : 0.3 mm (0.0118 in.)

C. Take-Up of Play at Torque Link Hinge Points
Excessive play is taken up by replacing the initial washers by special thicker washers.
The dimensions and locations of the special washers are given in the following table.



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Nose Gear Torque Links - Location of Play Measurement Points
Figure 801

LOCATION	THICKNESS	
	mm	inches
	2.15	0.0846
UPPER HINGE SHAFT	2.3	0.0905
	2.5	0.0984
CENTER HINGE SHAFT	4.2	0.1653
	4.4	0.1732
	2.15	0.0846
LOWER HINGE SHAFT	2.3	0.0905
	2.5	0.0984

D. Installation of Special Washers

NOTE : Installation of special washers requires prior removal of hinge shaft concerned (Ref. 32-21-15, P. Block 401).

(1)Operating mode for upper hinge shaft and lower hinge shaft.

Play values J1 and J3 measured in Para. B must be divided into two to take up play symmetrically in J1/J'1 and J3/J'3 using previously mentioned washers.

NOTE : Make certain that minimum end play of 0.05 mm (0.0019 in.) is maintained at upper and lower hinge shafts ; rework special washers if necessary.

(2)Operating mode for center hinge shaft

Measure dimension "e" (Ref. Fig. 802) on both ends e1 and e2 of the torque link arms and use the formula below to determine thickness R of the washer to be installed :

$$R = 48 \text{ mm } (1.890 \text{ in.}) - \frac{e1 + e2}{2}$$

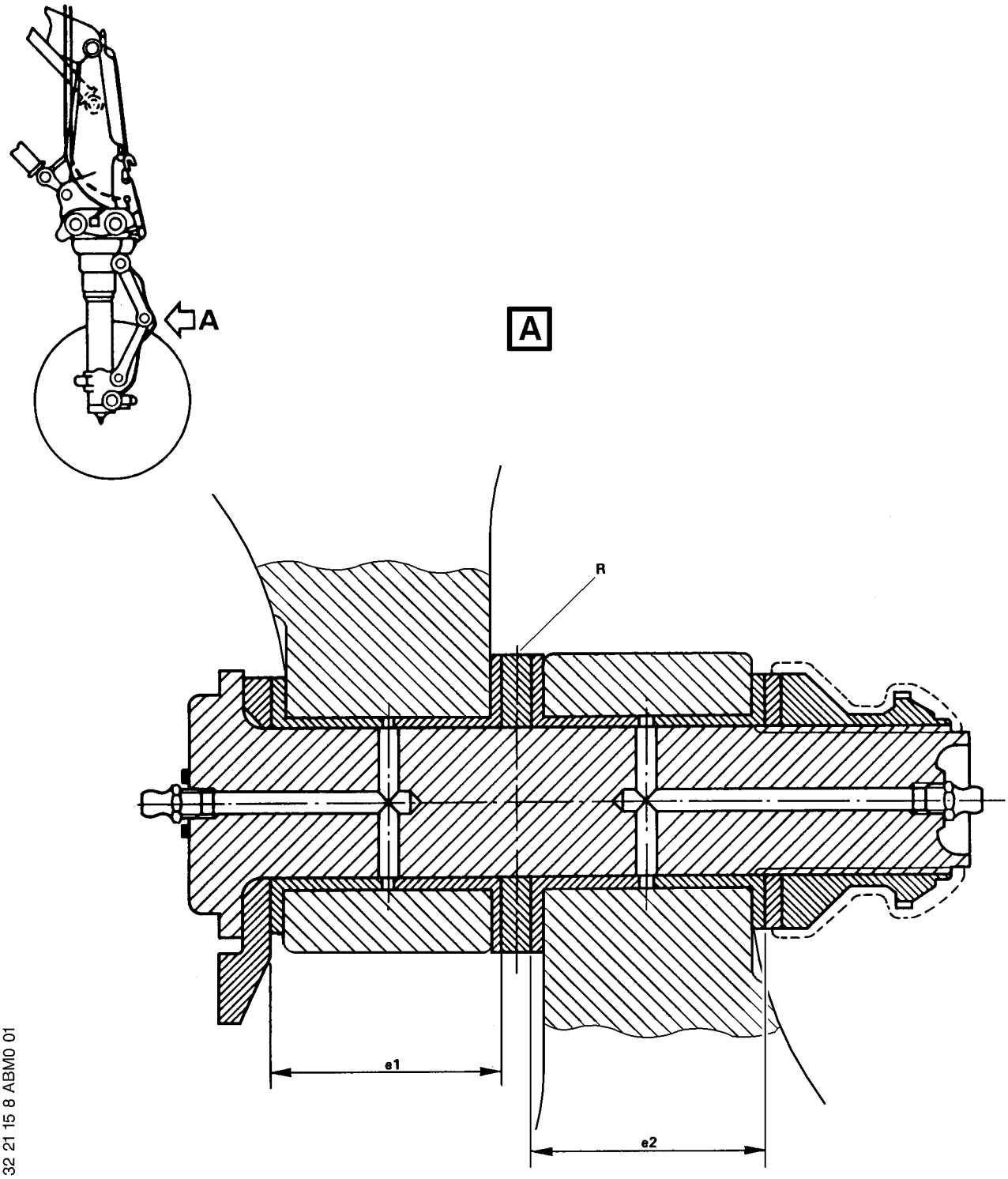
R NOTE : When measuring dimensions e1 and e2, thickness of press fit
R bushes must be taken into account.

E. Close-Up

(1)Install torque link hinge shafts (Ref. 32-21-15, P. Block 401).

(2)Grease torque link hinge shafts (Ref. 12-22-32, P. Block 1).

(3)Lower the aircraft onto its wheels (Ref. 07-11-00, P. Block 1).



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Calculation of Play on Center Hinge Shaft
Figure 802

R

HARNESS - NLG SYSTEMS - REMOVAL/INSTALLATION

WARNING : CHECK THAT THE LANDING GEAR GROUND SAFETIES INCLUDING WHEEL CHOCKS ARE IN POSITION.

BEFORE APPLYING OR RELIEVING HYDRAULIC SYSTEM PRESSURE, MAKE CERTAIN THAT THE TRAVEL RANGES OF THE CONTROL SURFACES ARE CLEAR.

BEFORE PRESSURIZING HYDRAULIC SYSTEMS, CHECK THAT ALL CONTROLS ARE SET TO CORRESPOND WITH THE ACTUAL POSITION OF THE SERVICES THEY OPERATE.

BEFORE POWER IS SUPPLIED TO THE AIRCRAFT, MAKE CERTAIN THAT ELECTRICAL CIRCUITS UPON WHICH WORK IS IN PROGRESS ARE ISOLATED.

BEFORE PRESSURIZING HYDRAULIC SYSTEMS, MAKE CERTAIN THAT HYDRAULIC SYSTEM UNDER MAINTENANCE HAS BEEN ISOLATED.

CAUTION : DO NOT MAKE KINKS IN THE ELECTRICAL HARNESSES OR PULL THE RELATED CABLES. THIS WILL PREVENT DAMAGE.

1. Equipment and Materials

ITEM	DESIGNATION
A.	Access Platform 2.6 m (8 ft. 7 in.)
B.	Blanking caps
C.	Circuit Breakers Safety Clips
D.	Spatula
E.	Safety Collars
F.	Warning Notices
G.	Safety Barriers
H.	Cotter pins
J. Material No. 05-047	Special Materials (Ref. 20-31-00)
K. Material No. 09-001	Sealants (Ref. 20-31-00)
Referenced Procedures	
- 07-11-00, P. Block 1	Lifting and Jacking
- 12-12-29, P. Block 1	Hydraulics
- 24-41-00, P. Block 301	External Power
- 29-10-00, P. Block 301	Main Hydraulic Power - Pressurization/ Depressurization
- 29-14-00, P. Block 301	Hydraulic Tank - Pressurizing System
- 32-00-00, P. Block 501	Landing Gear - General
- 32-22-11, P. Block 301	Nose Gear Main Door - (Ground Door(s) Opening)
- 32-30-00, P. Block 501	Extension/Retraction
- 32-42-00, P. Block 501	Normal Braking
- 32-42-66, P. Block 401	Tachometer Generator - Nose Gear
- 32-51-00, P. Block 501	Steering
- 33-46-00, P. Block 501	Light

2. Procedure

A. Job Set-Up
(1)On panel 4VU :
- make certain that landing gear Normal control lever is in **DOWN** position and prohibit its operation by displaying a warning notice.

(2)Between First Officer's and Flight Engineer's seats
- make certain that landing gear Free Fall extension control handle is in Normal position

(3)Open, safety and tag the following circuit breakers :

	PANEL	SERVICE	IDENT.	LOCATION
	22VU	LDG GEAR/EXTEND/CTL	1GA	201/J28
	133VU	HYDRAULIC/L/G PROX DET/& RELAYS SYS1/GEAR ON &/CTR PNL/POS IND	3GB	332/U53
	133VU	HYDRAULIC/NOSE/WHEEL/STRG	1GC	333/T53
R	133VU	HYDRAULIC/L/G PROX DET/& RELAYS SYS1/FLT/ GND	2GB	332/U51
R	133VU	HYDRAULIC/L/G PROX DET/& RELAY SYS2/RELAYS &/RETRACT/CTL	1GB	332/V52
		WARNING : PRIOR TO OPENING CIRCUIT BREAKER 119GB LOCATED ON PANEL 133VU, TAKE THE APPROPRIATE SAFETY MEASURES (REF. 32-00-00, P. BLOCK 501).		
	133VU	HYDRAULIC/L/G PROX DET/& RELAYS SYS1/FLT/ GND	119GB	333/U52
	133VU	HYDRAULIC/L/G PROX DET/& RELAYS SYS2/GEAR DOWN &/OVHD PNL/POS IND	83GB	331/V51
	132VU	LIGHTING/TAXI & TO/L/SUPPLY	1LR	323/M81
	132VU	LIGHTING/TAXI & TO/R/SUPPLY	2LR	323/M80
	132VU	LIGHTING/TAXI & TO/CTL	10LR	323/P75
	129VU	EXTERIOR LTS/TAXI & TAKE OFF/R/PWR SUPPLY	2LR	901/U35
	129VU	EXTERIOR LTS/TAXI & TAKE OFF/CTL	10LR	901/U34

(4)Position access platform.
(5)Position safety barriers prohibiting access to gear door travel ranges.
WARNING : MAKE CERTAIN THAT THE DOOR TRAVEL RANGES ARE CLEAR.
(6)Open nose gear doors (Ref. 32-22-11, P. Block 301).
WARNING : WHEN DOORS ARE OPEN MAKE CERTAIN THAT SAFETY COLLARS ARE POSITIONED ON DOOR ACTUATING CYLINDERS.
(7)Depressurize Green hydraulic system (Ref. 29-10-00, P. Block 301) and prohibit its pressurization by displaying a warning notice :
- on Green hydraulic system ground connectors,
- on panel 427VU to prohibit operation of Green electric pumps (ELEC PUMPS pushbutton switch).

(8)Depressurize Green hydraulic reservoir (Ref. 29-14-00, P. Block 301) and prohibit its pressurization by displaying a warning notice :
- on panel 429VU to prohibit APU starting,
- on reservoir pressurization connectors.

(9)De-energize the aircraft electrical network (Ref. 24-41-00, P. Block 301).

B. Remove Lower Electrical Harness

(Ref. Fig. 401) (Sheets 1/5 to 3/5)

NOTE : With a spatula, remove rubber coating from parts to be removed taking care not to damage surface finish.

NOTE : Put the blanking caps on the electrical connectors as you disconnect them.

(1)Disconnect electrical connector (51) (698VC) from intermediate coupling unit (50).
(Ref. Fig. 401) (Sheet 3/5)
(2)Remove nose gear tachometer (Ref. 32-42-66, P. Block 401).
(3)Remove nut (21), bolt (4), washers (3) and (20) to release clamp (2).
(Ref. Fig. 401) (Sheet 2/5)
(4)Remove bolt (5), washers (6) and (9), support (8) to release clamp (7).
(5)Remove bolt (10), washers (11) and (14), support (13) to release clamp (12).
(6)Remove nut (19), bolt (15), washers (16) and (18) to release clamp (17).
(7)Remove nuts (72), washers (71), bridge (70) and bolts (68) from bracket (69). (Ref. Fig. 401) (Sheet 3/5)
(8)Remove nut (67), washer (66) and bush (64) to release clamp (65) from captive bolt (63).
(9)Remove nut (62), washer (61) and bush (59) to release clamp (60) from captive bolt (58).
(10)Remove bolts (57) and washers (56).
(11)Remove nuts (55) and washer locks (54) from bush (52) to release cover assy (53).
(12)Remove screws (44), washers (34) to release cover guide (35).
(13)Remove bolts (31), washers (32) to release bridge (33).
(14)Remove nut (36), washer (37) and bolt (39) to release clamp (38).
(15)Remove nut (40), washer (41) and bolt (43) to release clamp (42).
(16)Remove nut (47), washer (48) and bolt (30) to release clamp (49).
(17)Remove lower electrical harness (1).

C. Remove Upper Electrical Harness 1S
(Ref. Fig. 401) (Sheets 1/5, 4/5 and 5/5)

NOTE : With a spatula, remove rubber coating from parts to be removed taking care not to damage surface finish.

NOTE : Put the blanking caps on the electrical connectors as you disconnect them.

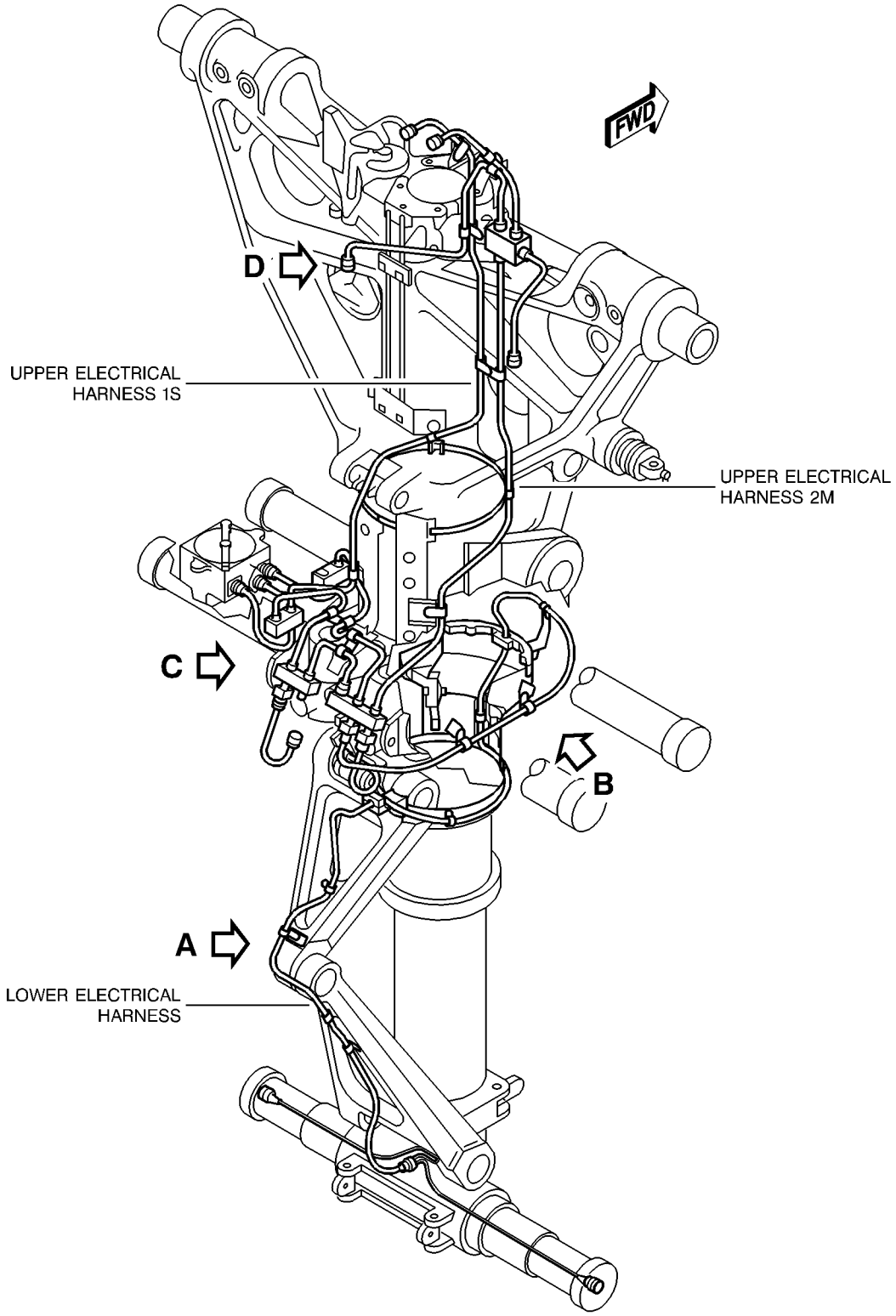
(1)Disconnect electrical connector (108) (699VC) from intermediate coupling unit (50).
(Ref. Fig. 401) (Sheet 4/5)

R **ON A/C 001-100, 105-200,

R Post SB 32-2108 For A/C 001-100,105-200,

NOTE : Remove and discard heat-shrinkable sleeves when you disconnect electrical connector from proximity sensor 55GB.

**ON A/C ALL



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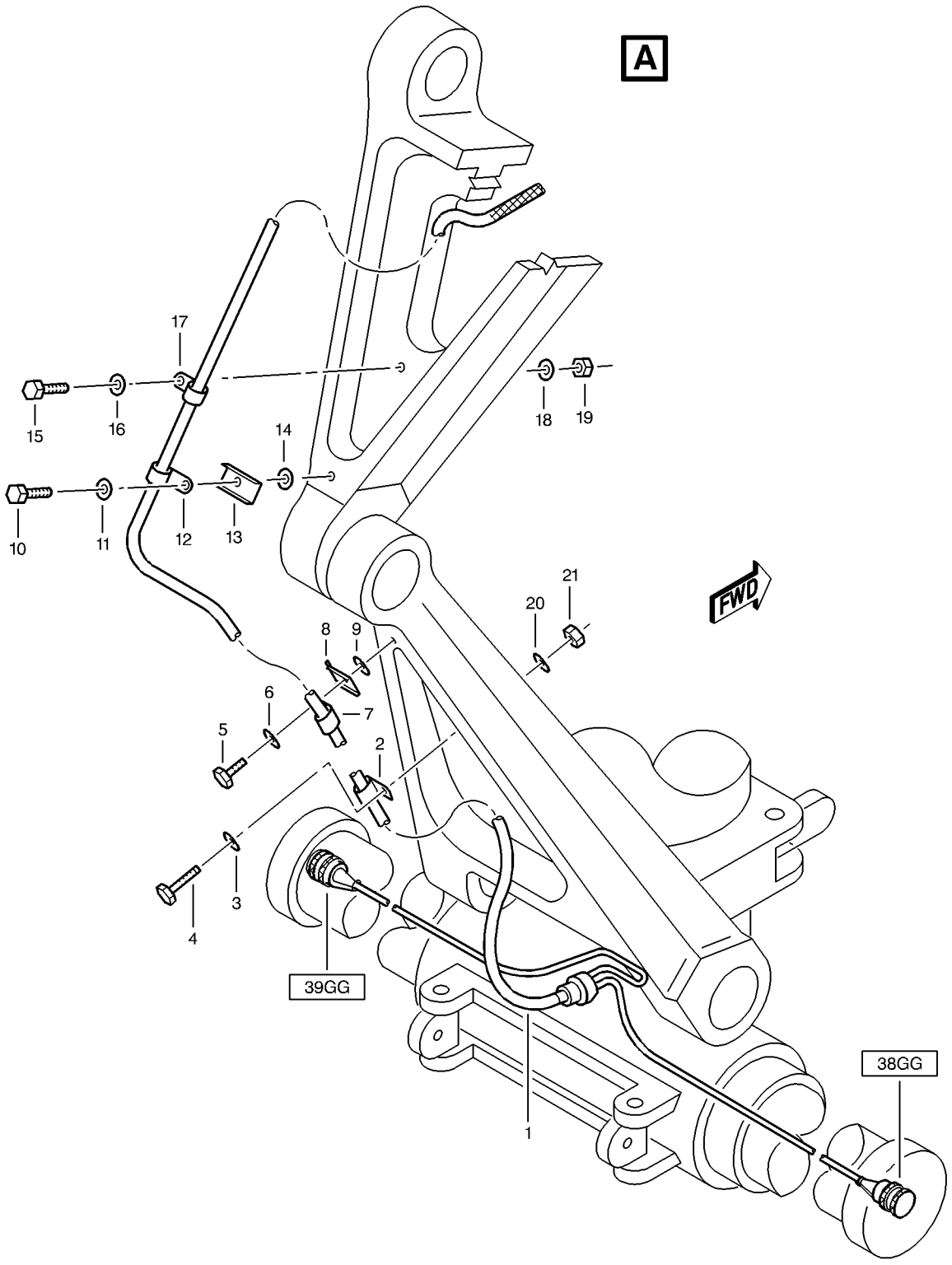
NLG Electrical Harness (Sheet 1/5)
Figure 401



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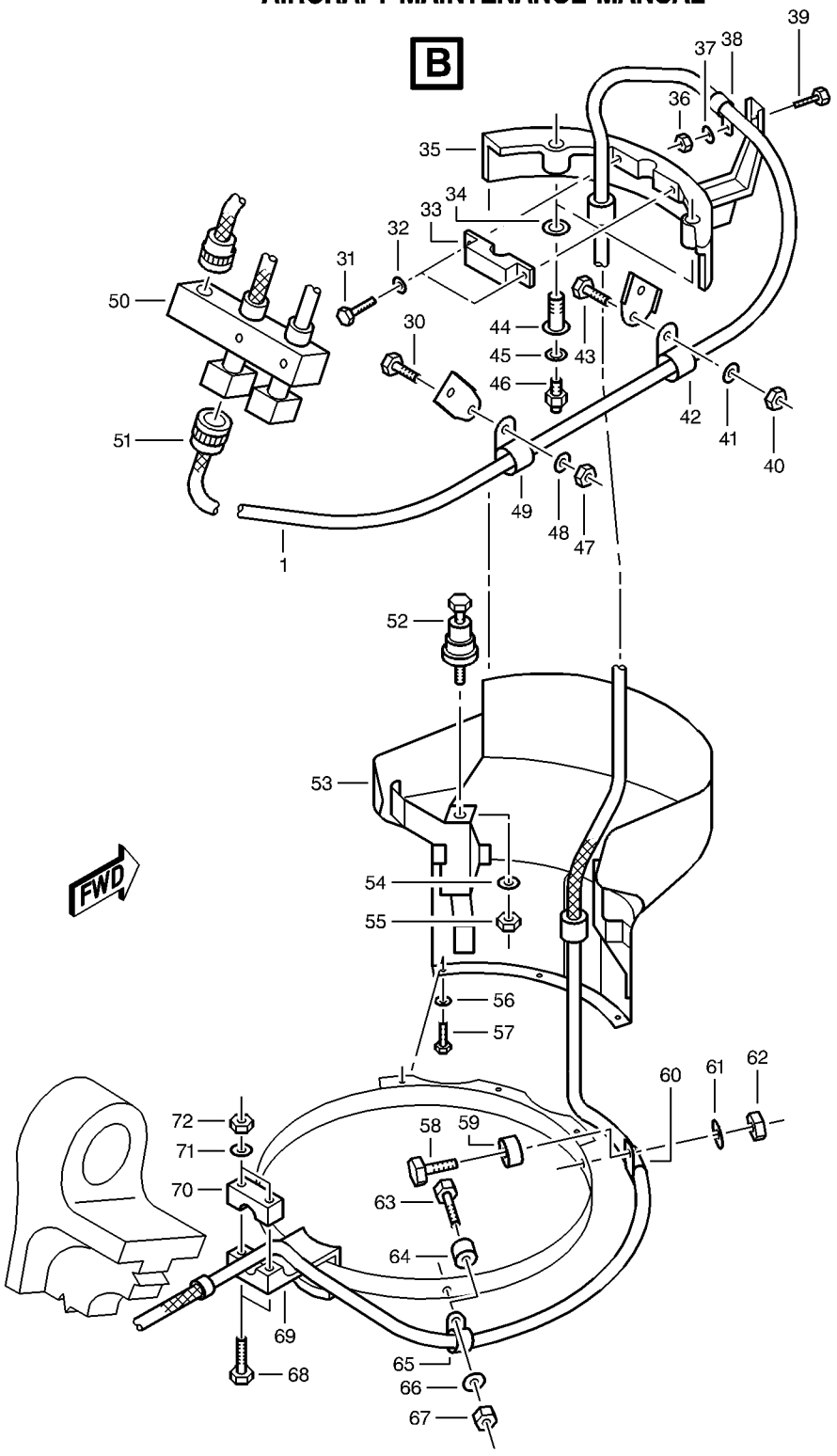
NLG Electrical Harness (Sheet 2/5)
Figure 401



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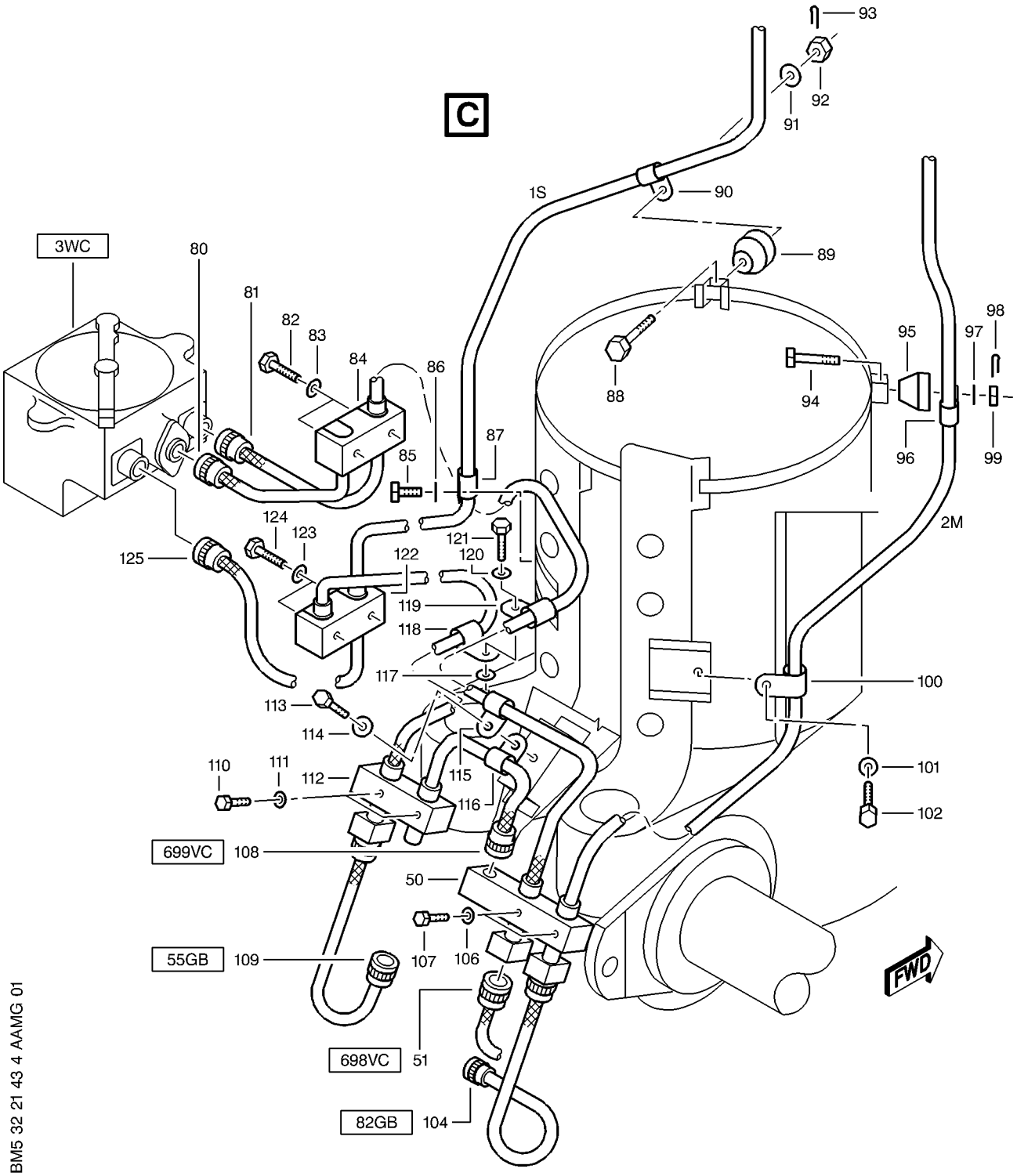
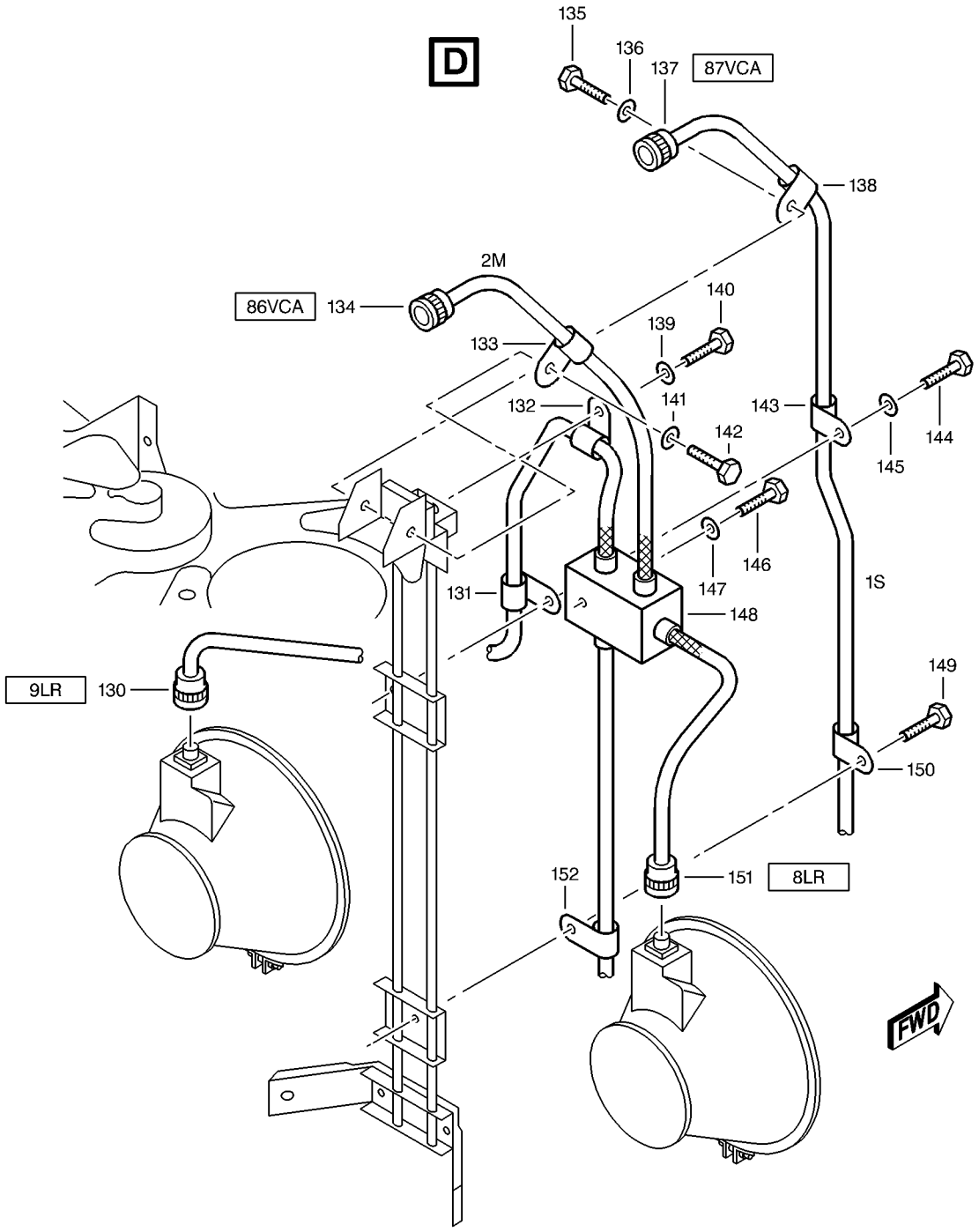
NLG Electrical Harness (Sheet 3/5)
Figure 401



NLG Electrical Harness (Sheet 4/5)
Figure 401



NLG Electrical Harness (Sheet 5/5)
Figure 401

(2)Disconnect electrical connector (109) from proximity sensor 55GB.
(3)Disconnect electrical connector (125) from interphone box 3WC.
(4)Remove bolt (113), washer (114) to release clamps (115) and (116).
(5)Remove bolt (121), washers (120) and (117) to release clamps (118) and (119).
(6)Remove bolts (124), washers (123) to release coupling unit (122).
(7)Remove bolts (110), washers (111) to release coupling unit (112).
(8)Remove bolt (85), washer (86) to release clamp (87).
(9)Remove and discard cotter pin (93). Remove nut (92), washer (91) and bush (89) from captive bolt (88) to release clamp (90).
(10)Remove bolt (149) to release clamps (150) and (152).
(Ref. Fig. 401) (Sheet 5/5)
(11)Remove bolt (144) and washer (145) to release clamps (143) and (131).
(12)Remove bolt (135), washer (136) to release clamp (138).
(13)Disconnect electrical connector (137) from aircraft supply connector 87VCA.
(14)Remove upper electrical harness 1S.

D. Remove Upper Electrical Harness 2M
(Ref. Fig. 401) (Sheets 1/5, 4/5 and 5/5)
NOTE : With a spatula, remove rubber coating from parts to be removed taking care not to damage surface finish.
NOTE : Put the blanking caps on the electrical connectors as you disconnect them.
(1)Disconnect electrical connector (108) (699VC) from intermediate coupling unit (50).
(Ref. Fig. 401) (Sheet 4/5)

R **ON A/C 001-100, 105-200,

R Post SB 32-2108 For A/C 001-100,105-200,

NOTE : Remove and discard heat-shrinkable sleeves when you disconnect connector from proximity sensor 82GB.

**ON A/C ALL

(2)Disconnect electrical connector (104) from proximity sensor 82GB.
(3)Disconnect electrical connector (51) (698VC) from intermediate coupling unit (50).
(4)Disconnect electrical connectors (80) and (81) from interphone box (3WC).
(5)Remove bolts (107), washers (106) to release intermediate coupling unit (50).
(6)Remove bolt (113), washer (114) to release clamps (115) and (116).
(7)Remove bolt (121), washers (117) and (120) to release clamps (118) and (119).
(8)Remove bolts (82), washers (83) to release lower coupling unit (84).
(9)Remove bolt (102), washer (101) to release clamp (100).
(10)Remove and discard cotter pin (98). Remove nut (99), washer (97) and bush (95) from captive bolt (94) to release clamp (96).

(11)Remove bolt (149) to release clamps (150) and (152).
(Ref. Fig. 401) (Sheet 5/5)
(12)Remove bolt (146), washer (147) to release upper coupling unit (148).
(13)Remove bolt (140), washer (139) to release clamp (132).
(14)Remove bolt (144), washer (145) to release clamps (131) and (143).
(15)Remove bolt (142), washer (141) to release clamp (133).
(16)Disconnect electrical connector (130) from LH taxi light (9LR).
(17)Disconnect electrical connector (151) from RH taxi light (8LR).
(18)Disconnect electrical connector (134) from aircraft supply connector (86VCA).
(19)Remove upper electrical harness 2M.

R E. Install Lower Electrical Harness
(Ref. Fig. 401) (Sheets 1/5 to 3/5)
NOTE : Remove the blanking caps from the electrical connectors immediately before you connect them.
NOTE : Apply a layer of anti-corrosion compound (Material No. 05-047) to the threads of all the nuts and bolts before you install them.
(1)Hold lower electrical harness (1) in position.
(Ref. Fig. 401) (Sheet 1/5)
(2)Connect electrical connector (51) (698VC) to intermediate coupling unit (50).
(Ref. Fig. 401) (Sheet 3/5)
(3)Install bolt (30), clamp (49), washer (48) and nut (47). Tighten nut (47).
(4)Install bolt (43), clamp (42), washer (41) and nut (40). Tighten nut (40).
(5)Install bolt (39), clamp (38), washer (37) and nut (36). Tighten nut (36).
(6)Engage lower electrical harness (1) between cover guide (35) and bridge (33).
Install washers (32) and bolts (31). Tighten bolts (31).
(7)Put cover guide (35) in position. Install washers (34) and screws (44). Tighten screws (44).
NOTE : When you install screws (44), make sure lubricators (46) and washers (45) are in good condition. If not, replace them.
(8)Put cover assy (53) in position. Install washer locks (54) and nuts (55) on bush (52). Tighten nuts (55).
(9)Install washers (56) and bolts (57). Tighten nuts (57).
(10)Install bush (59), clamp (60), washer (61) and nut (62) on captive bolt (58). Tighten nut (62).
(11)Install bush (64), clamp (65), washer (66) and nut (67) on captive bolt (63). Tighten nut (67).
(12)Engage lower electrical harness (1) between bracket (69) and bridge (70).
Install bolts (68), washers (71) and nuts (72). Tighten nuts (72).
(13)Install bolt (15), washer (16), clamp (17), washer (18) and nut (19). Tighten nut (19).
(Ref. Fig. 401) (Sheet 2/5)
(14)Install bolt (10), washer (11), clamp (12), support (13) and washer (14). Tighten bolt (10).
(15)Install bolt (5), washer (6), clamp (7), support (8) and washer (9).

Tighten bolt (5).
(16)Install bolt (4), washer (3), clamp (2), washer (20) and nut (21). Tighten nut (21).
(17)Install electrical connectors into the axle and install nose gear wheel tachometer (Ref. 32-42-66, P. Block 401).
(18)Apply a layer of sealant (Material No. 09-001) to the heads of all the nuts and bolts that you have installed.

F. Install Upper Electrical Harness 1S
(Ref. Fig. 401) (Sheets 1/5, 4/5 and 5/5)
NOTE : Remove the blanking caps from the electrical connectors immediately before you connect them.
NOTE : Apply a layer of anti-corrosion compound (Material No. 05-047) to the threads of all the nuts and bolts before you install them.
(1)Hold upper electrical harness 1S in position. (Ref. Fig. 401) (Sheet 1/5)
(2)Connect electrical connector (108) (699VC) to intermediate coupling (50). (Ref. Fig. 401) (Sheet 4/5)
(3)Install bolts (110), washers (111) and coupling unit (112). Tighten bolts (110).

R **ON A/C 001-100, 105-200,

R Post SB 32-2108 For A/C 001-100,105-200,

NOTE : Install new heat-shrinkable sleeves on connector of proximity sensor 55GB.

**ON A/C ALL

(4)Connect electrical connector (109) to proximity sensor 55GB.
(5)Install bolt (121), washers (120) and (117), and clamps (118) and (119). Tighten bolt (121).
(6)Install bolts (124), washers (123) and coupling unit (122). Tighten bolts (124).
(7)Connect electrical connector (125) to interphone box 3WC.
(8)Install bolt (85), washer (86) and clamp (87).Tighten bolt (85).
(9)Install bush (89), clamp (90), washer (91), and nut (92) on captive bolt (88). Tighten nut (92). Safety with cotter pin (93).
(10)Install bolt (149), clamps (150) and (152). Tighten bolt (149). (Ref. Fig. 401) (Sheet 5/5)
(11)Install bolt (144), washer (145) and clamps (131) and (143). Tighten bolt (144).
(12)Install bolt (135), washer (136) and clamp (138). Tighten bolt (135).
(13)Connect electrical connector (137) to aircraft supply connector (87VCA).
(14)Apply a layer of sealant (Material No. 09-001) to the heads of all the nuts and bolts that you have installed.

G. Install Upper Electrical Harness 2M
(Ref. Fig. 401) (Sheets 1/5, 4/5 and 5/5)
NOTE : Remove the blanking caps from the electrical connectors immediately before you connect them.
NOTE : Apply a layer of anti-corrosion compound (Material No. 05-047) to the threads of all the nuts and bolts before you install them.
(1)Hold upper electrical harness 2M in position.
(Ref. Fig. 401) (Sheet 1/5)
(2)Connect electrical connector (51) (698VC) to intermediate coupling unit (50).
(Ref. Fig. 401) (Sheet 4/5)
(3)Connect electrical connector (108) (699VC) to intermediate coupling unit (50).

R **ON A/C 001-100, 105-200,

R Post SB 32-2108 For A/C 001-100,105-200,

NOTE : Install new heat-shrinkable sleeves on connector of proximity sensor 82GB.

**ON A/C ALL

(4)Connect electrical connector (104) to proximity sensor 82GB.
(5)Install bolts (107), washers (106) and coupling unit (50). Tighten bolts (107).
(6)Install bolt (113), washer (114) and clamps (115) and (116). Tighten bolt (113).
(7)Install bolt (121), washers (120) and (117) and clamps (118) and (119). Tighten bolt (121).
(8)Install bolts (82), washers (83) and lower coupling unit (84). Tighten bolts (82).
(9)Connect electrical connectors (80) and (81) to interphone box (3WC).
(10)Install bolt (102), washer (101) and clamp (100). Tighten bolt (102).
(11)Install bush (95), clamp (96), washer (97) and nut (99) on captive bolt (94). Tighten nut (99). Safety with cotter pin (98).
(12)Install bolt (149), clamps (150) and (152). Tighten bolt (149).
(Ref. Fig. 401) (Sheet 5/5)
(13)Install bolt (146), washer (147) and upper coupling unit (148). Tighten bolt (146).
(14)Connect electrical connector (151) to RH taxi light (8LR).
(15)Install bolt (140), washer (139) and clamp (132). Tighten bolt (140).
(16)Install bolt (144), washer (145) and clamps (131) and (143). Tighten bolt (144).
(17)Connect electrical connector (130) to LH taxi light (9LR).
(18)Install bolt (142), washer (141) and clamp (133). Tighten bolt (142).
(19)Connect electrical connector (134) to aircraft supply connector (86VCA).
(20)Apply a layer of sealant (Material No. 09-001) to the heads of all the nuts and bolts that you have installed.

H. Tests

(1)Jack up aircraft until wheels clear ground (Ref. 07-11-00, P. Block 1).

(2)Energize the aircraft electrical network (Ref. 24-41-00, P. Block 301). Make certain that electronics rack ventilation is correct.

(3)Pressurize hydraulic reservoirs (Ref. 29-14-00, P. Block 301) and replenish hydraulic reservoirs if necessary (Ref. 12-12-29, P. Block 1).

(4)Carry out a landing gear normal retraction test and a landing gear normal
R extension test (Ref. 32-31-00, P. Block 501) only after :
R - Removal/installation of the upper electrical harness 1S
R and/or
R - Removal/installation of the upper electrical harness 2M.

CAUTION : BEFORE TEST, SLOWLY RETRACT LANDING GEAR BY USING LOW HYDRAULIC FLOW RATE AND THEREBY CHECK CLEARANCE BETWEEN LANDING GEAR AND ADJACENT STRUCTURE, AND CHECK LANDING GEAR FOR EVIDENCE OF BINDING OR TENDENCY TO HANG UP; ALSO MAKE CERTAIN THAT UPLOCK ROLLER ENGAGES CORRECTLY WITH UPLOCK HOOK.

NOTE : Check for hydraulic fluid leakage during initial pressurization and upon close-up of tests.

(5)Carry out a system test of gear retraction inhibition with nose gear shock absorber compressed and nose wheel steering to the left and to the right (Ref. 32-31-00, P. Block 501).

(6)Carry out functional test of steering hydraulic system (Ref. 32-51-00, P. Block 501).

(7)Carry out nose gear tachometer test (Ref. 32-42-00, P. Block 501).

(8)Not applicable.

(9)Perform an operational test of taxi and takeoff lights (Ref. 33-46-00, P. Block 501).

J. Close-Up

(1)Make certain that working area is clean and clear of tools and miscellaneous items of equipment.

WARNING : MAKE CERTAIN THAT AREA UNDER THE AIRCRAFT IS CLEAR.

(2)Lower the aircraft onto its wheels (Ref. 07-11-00, P. Block 1).

(3)Remove safety clips and tags and close :
- circuit breakers 1GA, 1GB, 1GC, 2GB, 3GB, 83GB and 119GB.

WARNING : AFTER CLOSING CIRCUIT BREAKER 119GB, PERFORM APPROPRIATE PROCEDURE (REF. 32-00-00, P. BLOCK 501).

(4)Pressurize hydraulic reservoirs (Ref. 29-14-00, P. Block 301).

WARNING : MAKE CERTAIN THAT THE DOOR TRAVEL RANGES ARE CLEAR.

(5)Close doors (Ref. 32-22-11, P. Block 301).

(6)Remove warning notices.

(7)Remove access platform and safety barriers.

NOSE GEAR DOORS - DESCRIPTION AND OPERATION

1. General

With nose gear retracted, gear well is closed by five doors :
- Two main doors,
- Two aft doors,

These four doors are attached to aircraft structure by hinges,
- One leg door installed on landing gear.

2. Component Location

(Ref. Fig. 001)

FIN	FUNCTIONAL DESIGNATION	PANEL	ZONE	ACCESS DOOR	ATA REF.
	DOOR-NOSE GEAR MAIN, L/R			713/714	32-22-11
	DOOR-NOSE GEAR AFT, L/R			715/716	32-22-13
	LEG DOOR-NOSE GEAR			712	32-22-15
1251	ACTUATING CYL-NLG DOOR, R		124	714	32-31-16
1252	ACTUATING CYL-NLG DOOR, L		123	713	32-31-16

FIN	FUNCTIONAL DESIGNATION	PANEL	ZONE	ACCESS DOOR	ATA REF.
	DOOR-NOSE GEAR MAIN, L/R			713/714	32-22-11
	DOOR-NOSE GEAR AFT, L/R			715/716	32-22-13
	LEG DOOR-NOSE GEAR			712	32-22-15
1251	ACTUATING CYL-NLG DOOR, R		124	714	32-31-16
1252	ACTUATING CYL-NLG DOOR, L		123	713	32-31-16

3. Main Doors (Ref. Fig. 001, 002)

Each main door is hinged to the aircraft structure at 3 points and is operated by a hydraulic actuating cylinder.

A mechanical control system enables each door to be independently released and opened (free fall) on the ground. Door closing is achieved by hydraulic pressure.

4. Aft Doors (Ref. Fig. 003, 002)

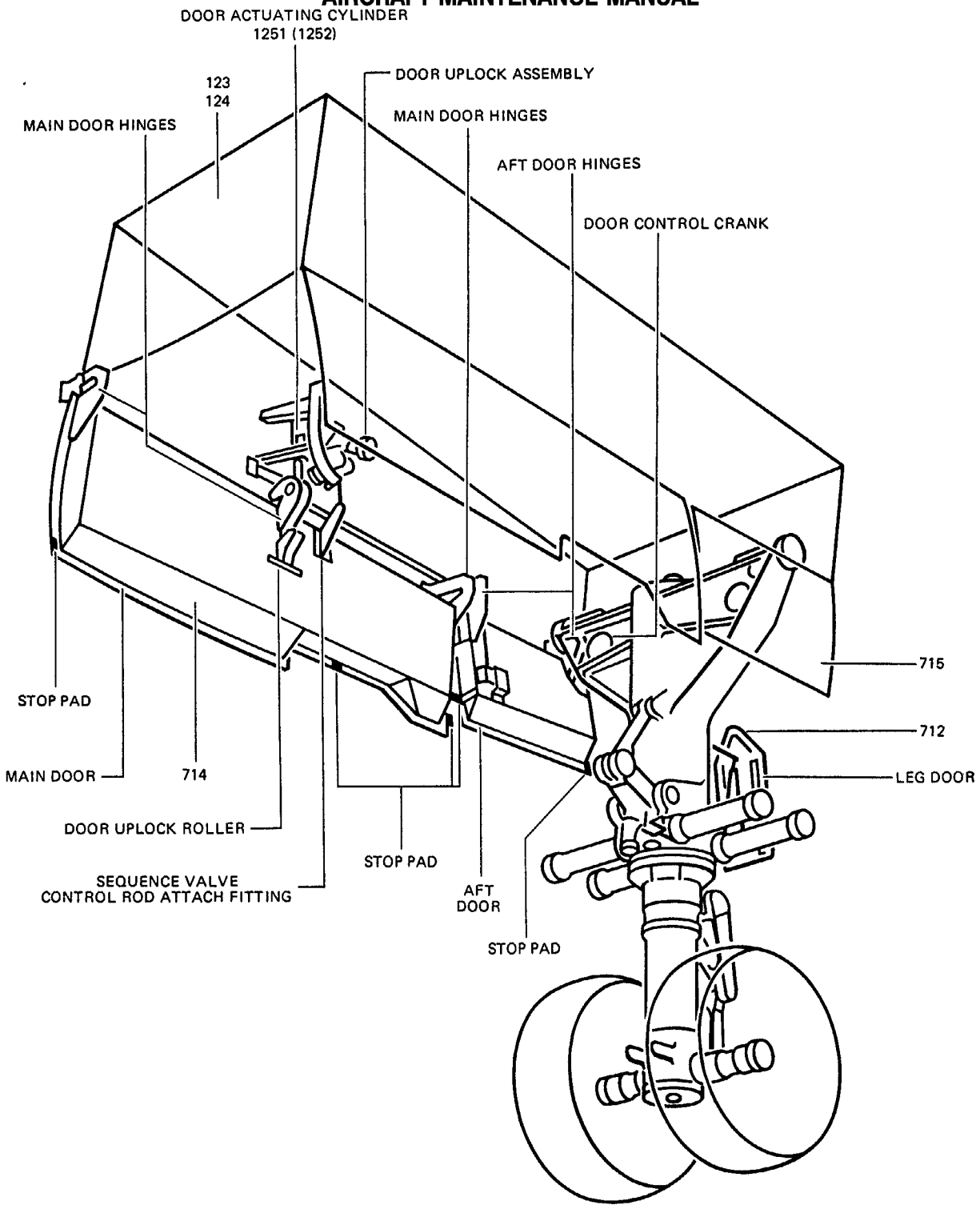
Operation of the two aft doors is achieved by a mechanical system actuated by the gear during extension and retraction.

Each aft door is equipped with the ground door opening control of the corresponding main door.

5. Leg door (Ref. Fig. 004, 002)

The leg door is attached to the landing gear shock strut by 4 adjustable attachment fittings.

A bonding jumper ensures electrical continuity with the shock strut.



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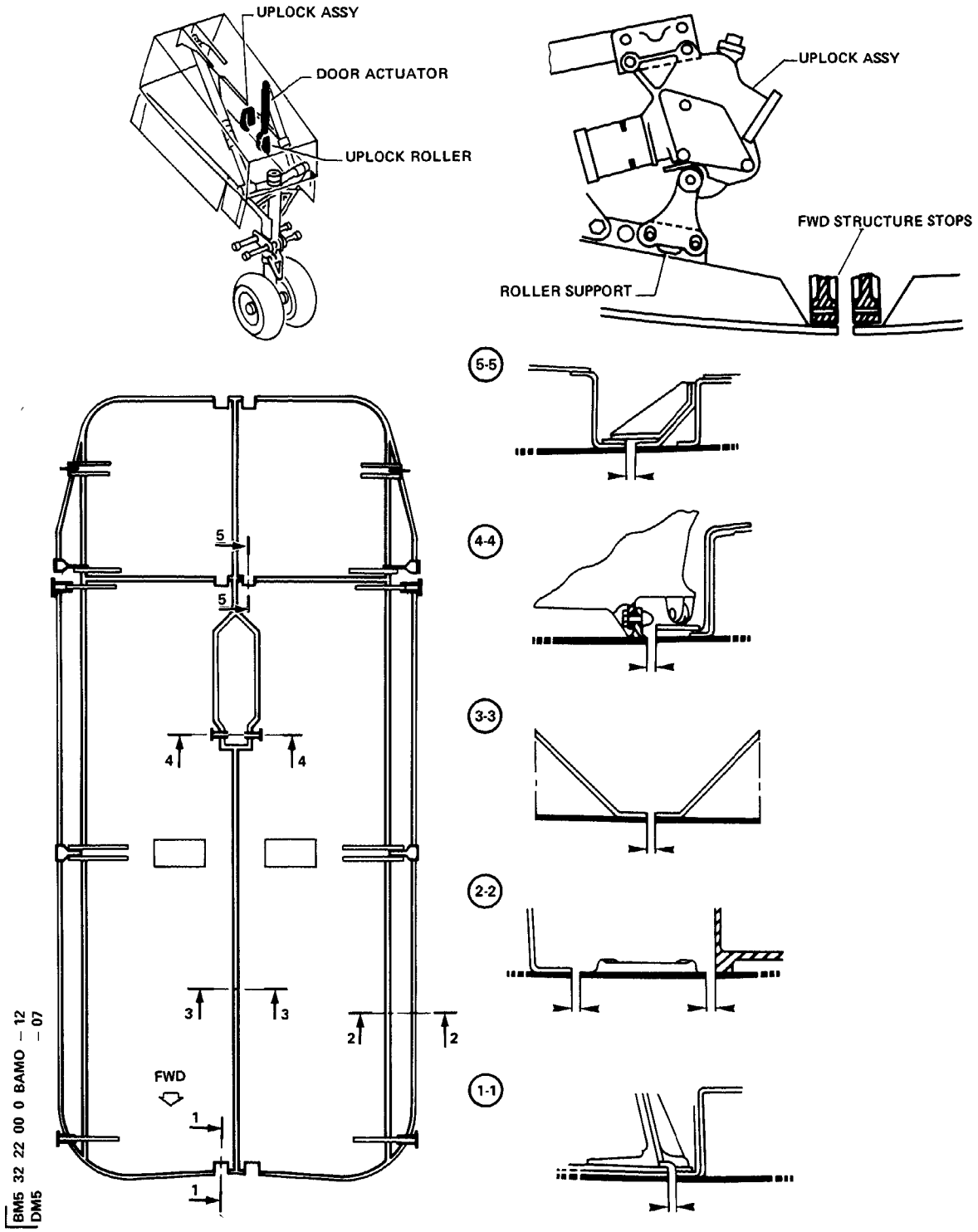
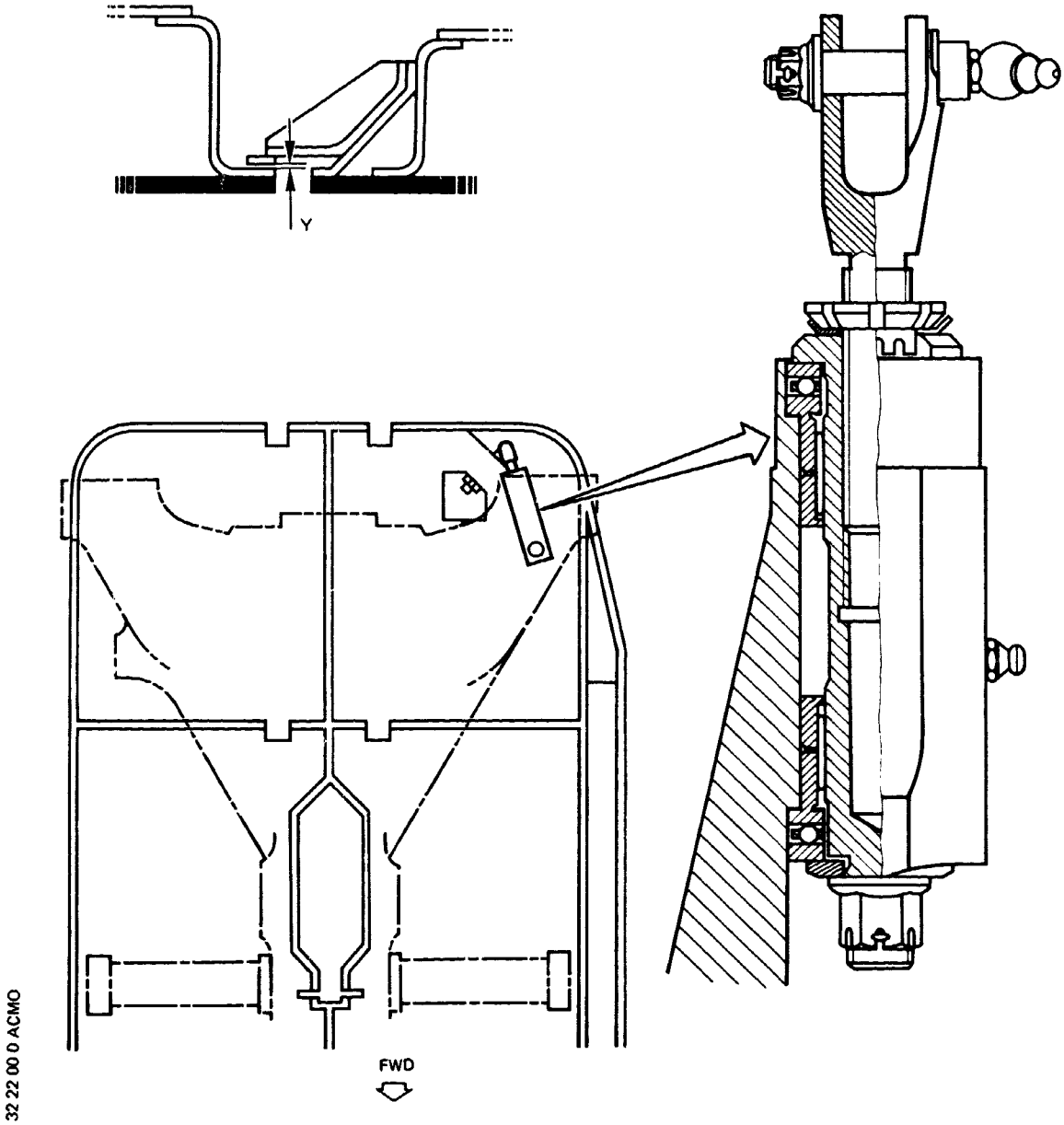
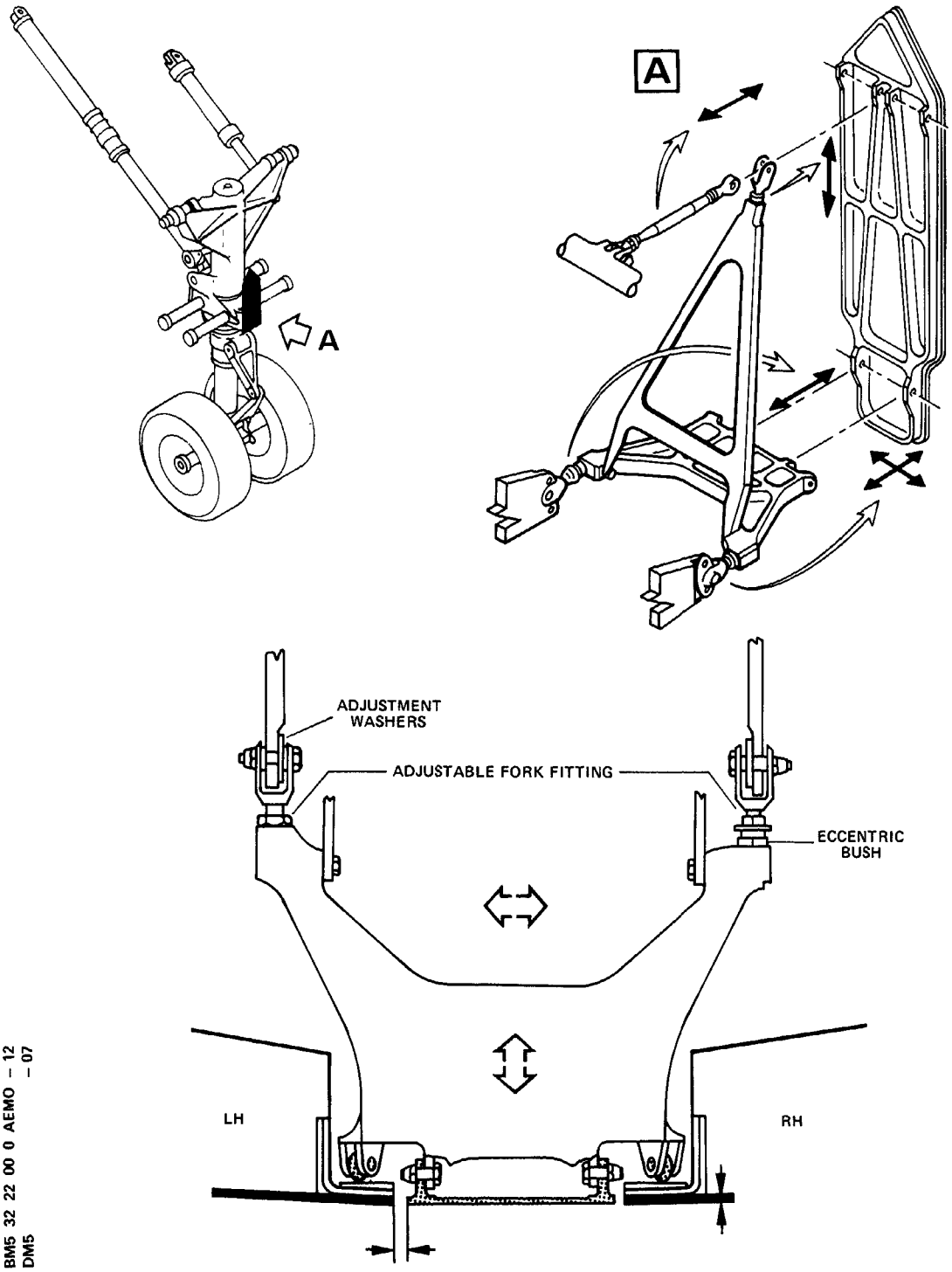
Nose Gear Doors
Figure 001



Nose Gear Doors - Adjustment
Figure 002



Aft Doors
Figure 003



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Leg Door
Figure 004

NOSE GEAR MAIN DOOR - SERVICING (GROUND DOOR(s) OPENING)

WARNING : CHECK THAT THE LANDING GEAR GROUND SAFETIES INCLUDING WHEEL CHOCKS ARE IN POSITION.

BEFORE APPLYING OR RELIEVING HYDRAULIC SYSTEM PRESSURE, MAKE CERTAIN THAT THE TRAVEL RANGES OF THE CONTROL SURFACES ARE CLEAR.
BEFORE PRESSURIZING HYDRAULIC SYSTEMS, CHECK THAT ALL CONTROLS ARE SET TO CORRESPOND WITH THE ACTUAL POSITION OF THE SERVICES THEY OPERATE.

BEFORE PRESSURIZING HYDRAULIC SYSTEMS, MAKE CERTAIN THAT HYDRAULIC SYSTEM UNDER MAINTENANCE HAS BEEN ISOLATED.

1. Reason for the Job

A. Nose gear door opening for access to or removal of equipment installed in zones 123-124.

B. Landing Gear Door Closure
NOTE : Each nose landing gear door is provided with an independent closure system.
The doors may be closed by means of either :
- the Green hydraulic system electric pumps (Ref. 29-21-00, P. Block 301).
- or a hydraulic ground power cart (Ref. 29-10-00, P. Block 301).

2. Equipment and Materials

	ITEM	DESIGNATION
R	A. C47281-1000	Safety Collars
	B.	Safety Barriers
	C.	Warning Notice
	D.	Safety Pin
	Referenced Procedures	
	- 24-41-00, P. Block 301	AC External Power Control
	- 29-14-00, P. Block 301	Hydraulic Reservoir-Pressurization/ Depressurization
	- 29-21-00, P. Block 301	Green Auxiliary Power - Pressurization
	or	
	- 29-10-00, P. Block 301	Main Hydraulic Power - Pressurization/ Depressurization

3. Procedure

A. Job Set-Up
(1)On panel 4VU
- make certain that landing gear control lever is in **DOWN** position and prohibit its operation by displaying a warning notice.

(2)Between the First Officer's and Third Occupant's seats
- make certain that landing gear Free Fall extension control handle

is in Normal position.
(3)Position safety barriers prohibiting access to gear door travel ranges.

B. Door Opening
NOTE : Ground door opening can be carried out :
- when hydraulic reservoirs are pressurized, Green system under pressure.
- without pressurization of hydraulic reservoirs.
WARNING : MAKE CERTAIN THAT THE DOOR TRAVEL RANGES ARE CLEAR.
(1)Carefully read placard located adjacent to door ground opening control.
WARNING : FOR SAFETY REASONS STAND AFT OF GEAR LEG WHEN OPERATING DOOR GROUND OPENING CONTROL.
(2)Nose landing gear left door opening
(a)Place nose gear left door ground opening control handle in OPENED position. Remove safety pin stowed on inner side of handle and lock handle by inserting safety pin in door ground opening control bellcrank.
(b)Make certain that door opens.
(c)Install safety collar on door actuating cylinder .
(3)Nose landing gear right door opening
(a)Place nose gear right door ground opening control handle in OPENED position. Remove safety pin stowed on inner side of handle and lock handle by inserting safety pin in door ground opening control bellcrank with streamer.
(b)Make certain that door opens
(c)Install safety collar on door actuating cylinder
NOTE : It is possible that the doors will not open fully under their own weight, in which case it will be necessary to assist them manually at the end of travel.

C. Door Closure
(1)Carefully read placard located adjacent to door ground opening control.
(2)Make certain that Green hydraulic reservoir is pressurized (Ref. 29-14-00, P. Block 301).
(3)Make certain that safety pins are installed to lock door ground opening control handles in OPENED position, and that Green hydraulic system is depressurized.
(4)Remove safety collar from actuating cylinder of door to be closed.
WARNING : IF OTHER GEAR DOORS ARE OPEN, MAKE CERTAIN THAT SAFETY COLLARS ARE INSTALLED ON DOOR ACTUATING CYLINDERS AND THAT DOOR GROUND OPENING CONTROL HANDLES ARE LOCKED IN OPENED POSITION BY MEANS OF SAFETY PINS.
(5)On panel 4VU
- make certain that landing gear control lever is in DOWN position.
(6)Energize the aircraft electrical network (Ref. 24-41-00, P. Block 301). Check that electronics racks are ventilated.
(7)Pressurize the Green hydraulic system either by means of Green electric pumps (Ref. 29-21-00, P. Block 301) or with a hydraulic ground power cart (Ref. 29-10-00, P. Block 301).
WARNING : MAKE CERTAIN THAT THE DOOR TRAVEL RANGES ARE CLEAR.
WARNING : FOR SAFETY REASONS STAND AFT OF GEAR LEG WHEN OPERATING DOOR GROUND OPENING CONTROL.

(8)Closing of nose gear left door.
- Remove safety pin from door ground opening control bellcrank
- Stow safety pin on inner side of control handle
- Place control handle in **CLOSED** position
- Check that door closes and uplocks.

(9)Closing of nose gear right door
- Remove safety pin from door ground opening control bellcrank
- Stow safety pin on inner side of control handle
- Place control handle in **CLOSED** position
- Check that door closes and uplocks.

(a)Make certain that doors close and uplock.

WARNING : IF THE DOORS FAIL TO CLOSE, DOOR GROUND OPENING CONTROL HANDLES SHALL BE RETURNED TO OPENED POSITION (PROBABLE CAUSE : INSUFFICIENT PRESSURE IN THE LANDING GEAR HYDRAULIC SYSTEM).

(10)On panels 4VU and 76VU
- make certain that amber **DOOR** legends on corresponding gear door annunciators are off.

(11)Shut down Green hydraulic power (Ref. 29-21-00, P. Block 301) or (Ref. 29-10-00, P. Block 301).

D. Close-Up

(1)De-energize the aircraft electrical network and disconnect electrical ground power unit (Ref. 24-41-00, P. Block 301).

(2)Remove warning notice

(3)Close access doors, remove access platforms and safety barriers.

(4)Remove all ground handling and maintenance equipment, standard and special tools, together with ground power and replenishing, all access equipment and miscellaneous items.

NOSE GEAR MAIN DOOR - REMOVAL/INSTALLATION

WARNING : CHECK THAT THE LANDING GEAR GROUND SAFETIES INCLUDING WHEEL CHOCKS ARE IN POSITION.
BEFORE APPLYING OR RELIEVING HYDRAULIC SYSTEM PRESSURE, MAKE CERTAIN THAT THE TRAVEL RANGES OF THE CONTROL SURFACES ARE CLEAR.
BEFORE PRESSURIZING HYDRAULIC SYSTEMS, CHECK THAT ALL CONTROLS ARE SET TO CORRESPOND WITH THE ACTUAL POSITION OF THE SERVICES THEY OPERATE.
BEFORE POWER IS SUPPLIED TO THE AIRCRAFT MAKE CERTAIN THAT ELECTRICAL CIRCUITS UPON WHICH WORK IS IN PROGRESS ARE ISOLATED.
BEFORE PRESSURIZING HYDRAULIC SYSTEMS MAKE CERTAIN THAT HYDRAULIC SYSTEM UNDER MAINTENANCE HAS BEEN ISOLATED.

1. Equipment and Materials

	ITEM	DESIGNATION
	A. 98A32301012000	Pin-Rigging, Nose Gear Sequence Valve Control
	B. Material No. 04-004	Common Greases (Ref. 20-31-00)
R	C. Material No. 04-022	Common Greases (Ref. 20-31-00)
R	D. Material No. 11-002	Cleaning Agents (Ref. 20-31-00)
R	E.	Warning Notices
R	F.	Safety Barriers
R	G.	Access platform 2 m - 2.6 m (6 ft. 7 in. - 8 ft. 7 in.)
	Referenced Procedures	
	- 12-22-32, P. Block 1	Landing Gear Lubrication
	- 29-10-00, P. Block 301	Main Hydraulic Power (Pressurization/ Depressurization)
	- 29-14-00, P. Block 301	Hydraulic Reservoir Pressurizing System
	- 32-12-11, P. Block 301	Main Gear Main Door - (Ground Door(s) Opening)
	- 32-22-11, P. Block 301	Nose Gear Main Door - (Ground Door(s) Opening)
	- 32-22-11, P. Block 501	Nose Gear Main Door
	- 32-31-00, P. Block 501	Normal Extension and Retraction

2. Procedure

A. Job Set-Up
(1)On panel 4VU
- make certain that landing gear control lever is in **DOWN** position and prohibit its operation by displaying a warning notice.

(2)Between the First Officer's and Third Occupant's seats
- make certain that Free Fall extension control handle is in Normal position.

(3)Position access platforms.
(4)Position safety barriers prohibiting access to gear door travel ranges.
WARNING : MAKE CERTAIN THAT THE DOOR TRAVEL RANGES ARE CLEAR.
(5)Open nose and left main landing gear doors (Ref. 32-12-11, P. Block 301 and 32-22-11, P. Block 301).
WARNING : WHEN DOORS ARE OPEN MAKE CERTAIN THAT SAFETY COLLARS ARE

POSITIONED ON DOOR ACTUATING CYLINDERS.

(6)Depressurize Green hydraulic system (Ref. 29-10-00, P. Block 301) and prohibit its pressurization by displaying a warning notice
- on Green hydraulic system ground connectors.
- on panel 427VU to prohibit operation of Green electric pumps (ELEC PUMPS pushbutton switch)

(7)Depressurize Green hydraulic reservoir (Ref. 29-14-00, P. Block 301) and prohibit its pressurization by displaying a warning notice
- on panel 56VU, to prohibit APU starting
- on reservoir pressurization connector.

B. Removal (Ref. Fig. 401)

(1)Disconnect bonding jumpers (5), (16) : remove bolts (6), (18) and nuts (4), (17).

(2)Disconnect gear sequence control rod (36) from door attach point.
Disconnect control rod (36) : remove cotter pin (33), nut (32), washer (35), bushing (31), hinge bolt (34).
Secure gear sequence control rod to aircraft structure.

(3)Disconnect actuating cylinder from door lower attach point
- Remove cotter pin, remove nut (12), washer (11), drive out hinge bolt (14) and retain bush (10).

(4)Disconnect door center hinge : remove cotter pin, nut (21), washer (19), hinge bolt (23). Retain bush (22).

(5)Hold door and disconnect end hinges.
- Remove cotter pin, remove nuts (1), washers (3) and bolts (7).
- Retain spacers (8) for reinstallation.

(6)Remove door

C. Preparation of Replacement Component

(1)Depreserve replacement door
Clean with material No.11-002 and dry with filtered compressed air.

(2)Remove fitting (27) from removed door.
- Remove nuts (28), retain washers (26) for reinstallation and remove bolts (25).

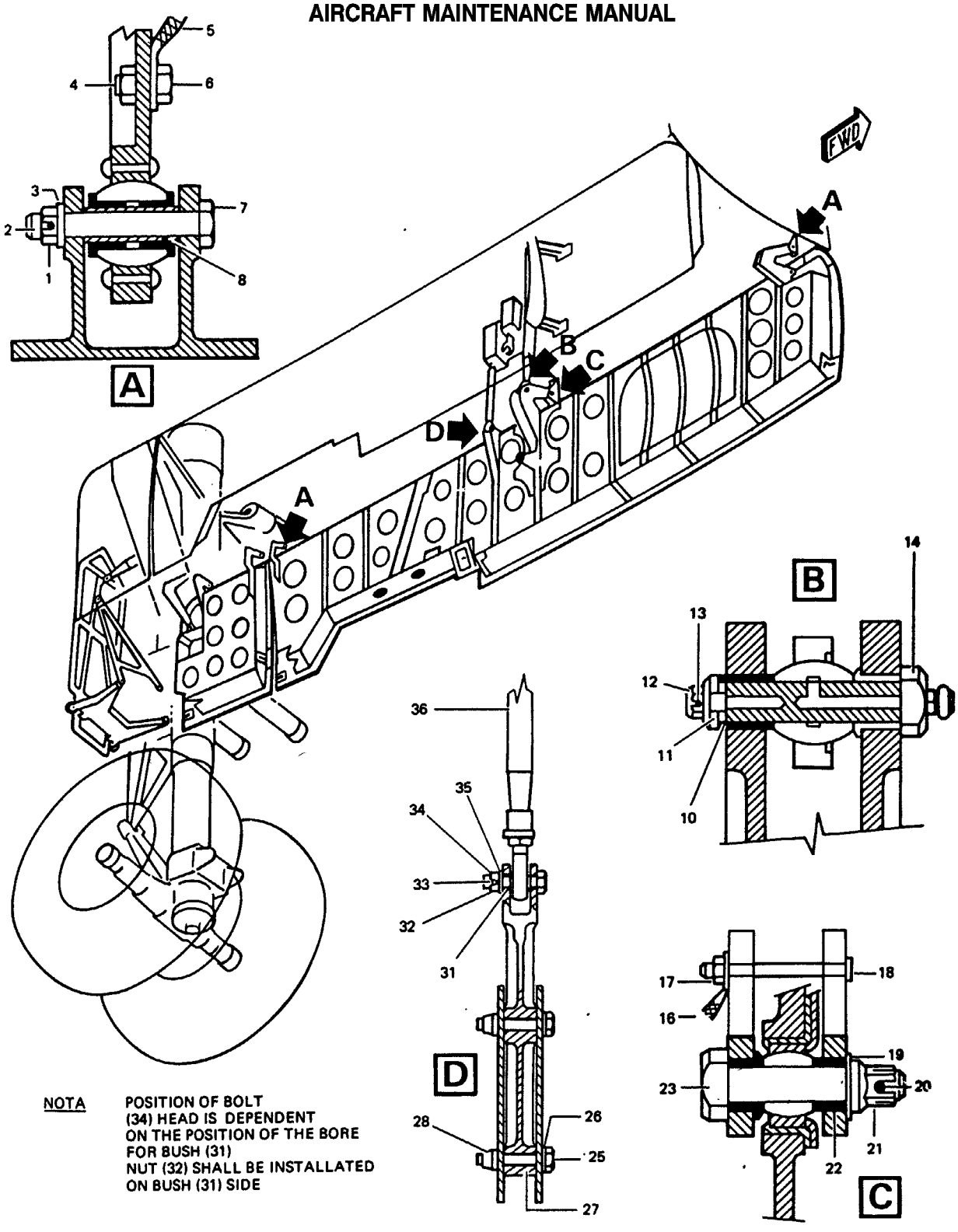
(3)Install fitting (27) on replacement door.
- Install bolts (25), washers (26), and nuts (28).

(4)Clean all bolts, spacers and washers to be installed and lubricate
R with material No. 04-004 or Material No. 04-022.
R NOTE : Do not mix Material No. 04-004 with Material No. 04-022.
R You can use Material No. 04-022 as an alternative to
R Material No. 04-004. Clean and degrease the parts before you use
R Material No. 04-022.

D. Installation

(1)Install spacers (8) in their recesses, install door on its hinge fittings and secure the two outer hinges with rigging pins.

(2)Connect door to center hinge.
R NOTE : Coat bolt (23) with material No. 04-004 or Material No. 04-022
R to facilitate installation.
R NOTE : Do not mix Material No. 04-004 with Material No. 04-022.
R You can use Material No. 04-022 as an alternative to



Nose Gear Main Door Attachments
Figure 401

R Material No. 04-004. Clean and degrease the parts before you use
R Material No. 04-022.

(a)Install bush (22).
(b)Install bolt (23), washer (19), nut (21) and safety with cotter pin (20).

(3)On one outer hinge, remove rigging pin, make certain that spacer (8) is in position and install bolt (7), washer (3), nut (1) and safety with cotter pin (2).

(4)Remove the other rigging pin, make certain that spacer (8) is in position and install bolt (7), washer (3), nut (1) and safety with cotter pin (2).

(5)Connect actuating cylinder to lower attach point on door, by means of bolt (14), bush (10), washer (11), nut (12) and safety with cotter pin (13).

WARNING : MAKE CERTAIN THAT SAFETY COLLAR IS INSTALLED ON REPLACEMENT DOOR ACTUATING CYLINDER.

(6)Connect landing gear sequence control rod (36) to its attachment on the door.

(a)Connect gear sequence control rod (36), install bush (31), bolt (34), washer (35), nut (32), and safety with cotter pin (33).

NOTE : Position of bolt (34) head is dependent on the position of the bore for bush (31). Nut (32) shall be installed on bush (31) side.

(7)Move door to position where actuating cylinder is fully extended and make certain that lever (37) can be rigged on sequence valve, using rigging pin 98A32301012000. (Ref. Fig. 402)
If necessary, adjust length of rod (36).
Tighten and safety locknut (38).

NOTE : Push the door firmly to the open position in order to ensure bottoming of actuator

(8)Connect bonding jumpers (5), (16), bolts (6) (18), nuts (4) (17).

(9)Lubricate actuating cylinder hinge points (Ref. 12-22-32, P. Block 1).

E. Tests

(1)Adjust door (Ref. 32-22-11, P. Block 501).

NOTE : Make certain that lever (37) can be rigged on sequence valve after adjustment. Use rigging pin 98A32301012000 (Ref. Fig. 402)

(2)Carry out a landing gear retraction and extension functional test (Ref. 32-31-00, P. Block 501).

F. Close-Up

(1)Make certain that working area is clean and clear of tools and miscellaneous items of equipment.

(2)Pressurize Green hydraulic reservoir (Ref. 29-14-00, P. Block 301).

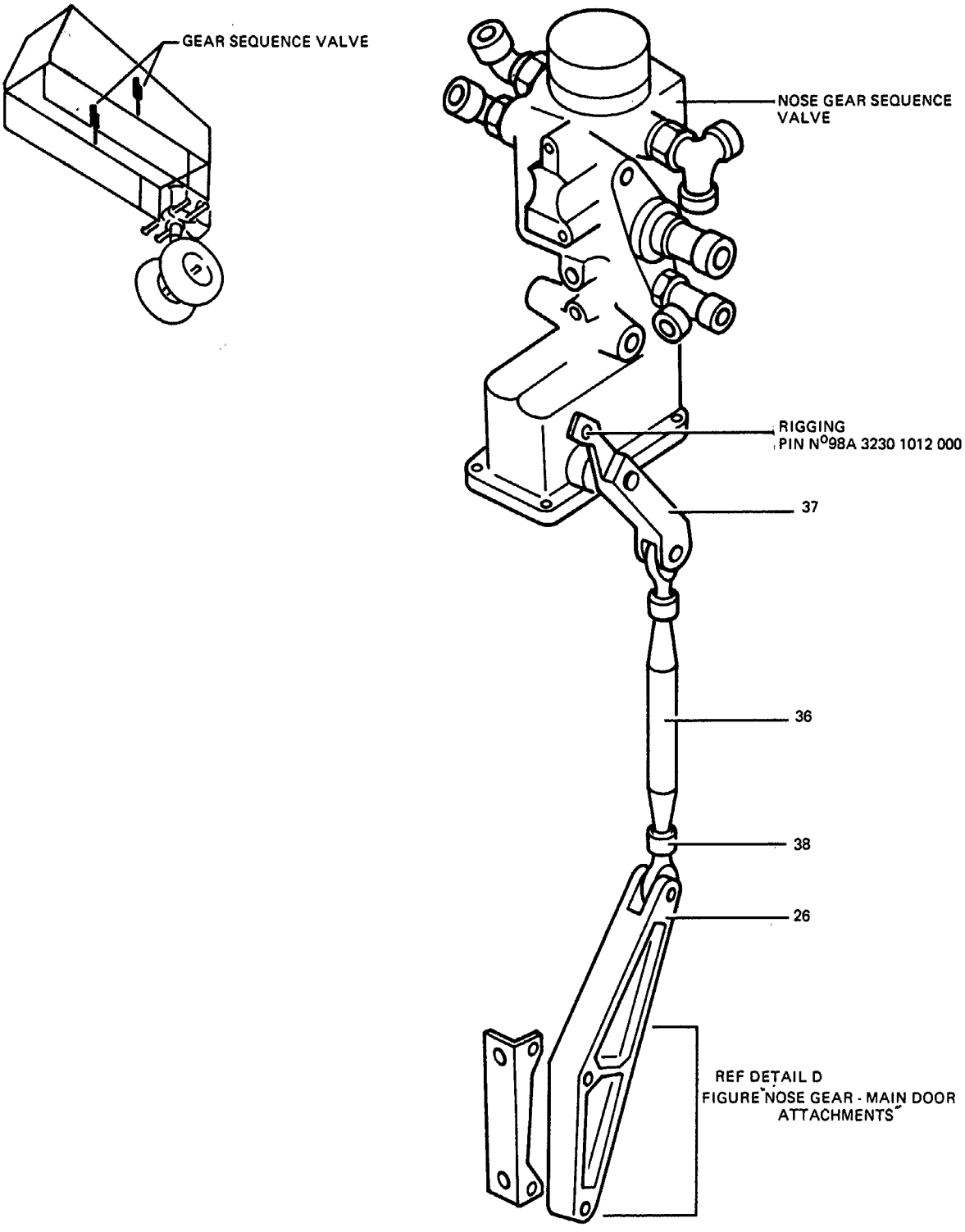
WARNING : MAKE CERTAIN THAT DOOR TRAVEL RANGES ARE CLEAR.

(3)Close landing gear doors (Ref. 32-12-11, P. Block 301 or 32-22-11, P. Block 301).

(4)Remove warning notices.

(5)Close access doors, remove access platform and safety barriers.

(6)Remove all ground handling and maintenance equipment standard and



Nose Gear Main Door-Adjustment of Landing Gear Sequence Valve Control
Figure 402

special tools, together with ground power and replenishing equipment, all access equipment and miscellaneous items.

R NOSE GEAR MAIN DOOR - ADJUSTMENT/TEST

WARNING : CHECK THAT THE LANDING GEAR GROUND SAFETIES INCLUDING WHEEL CHOCKS ARE IN POSITION.
BEFORE APPLYING OR RELIEVING HYDRAULIC SYSTEM PRESSURE, MAKE CERTAIN THAT THE TRAVEL RANGES OF THE CONTROL SURFACES ARE CLEAR.
BEFORE PRESSURIZING HYDRAULIC SYSTEMS, CHECK THAT ALL CONTROLS ARE SET TO CORRESPOND WITH THE ACTUAL POSITION OF THE SERVICES THEY OPERATE.
BEFORE POWER IS SUPPLIED TO THE AIRCRAFT MAKE CERTAIN THAT ELECTRICAL CIRCUITS UPON WHICH WORK IS IN PROGRESS ARE ISOLATED.
BEFORE PRESSURIZING HYDRAULIC SYSTEMS MAKE CERTAIN THAT HYDRAULIC SYSTEM UNDER MAINTENANCE HAS BEEN ISOLATED.

1. Adjustment

A. Reason for the Job
(1)Adjustment of a main door or of a door uplock assembly after replacement.

B. Equipment and Materials

ITEM	DESIGNATION
(1)	Cart - Ground Power Supply and Preliminary Testing, 150 l/min. (39.6 US GPM) Hydraulic
R (2)C47281-1000	Safety Collar
(3)	Access Platform 2.6 m (8 ft. 7 in.)
(4)	Safety Barriers
(5)	Warning Notices
(6)	Blanking Plugs
(7)	Hydraulic Fluid Container
Referenced Procedures	
- 07-11-00, P. Block 1	Jacking for Aircraft Maintenance Operations
- 12-12-29, P. Block 1	Hydraulic Reservoir Replenishing
- 24-41-00, P. Block 301	AC External Power Control
- 29-10-00, P. Block 301	Main Hydraulic Power - Pressurization/ Depressurization
- 29-14-00, P. Block 301	Hydraulic Reservoir - Pressurizing System
- 32-12-11, P. Block 301	Main Gear Main Door - (Ground Door(s) Opening)
- 32-22-11, P. Block 301	Nose Gear Main Door - (Ground Door(s) Opening)
- 32-22-15, P. Block 401	Nose Gear Leg Door
- 32-31-00, P. Block 501	Normal Extension and Retraction
- 32-31-16, P. Block 401	Nose Gear Door Actuating Cylinder

C. Job Set-Up
NOTE : Aircraft configuration : gears extended, nose gear and main gear doors open. If doors are closed open them (Ref. 32-12-11, P. Block 301) (Ref. 32-22-11, P. Block 301).
(1)On panel 4VU
- make certain that landing gear control lever is in **DOWN** position and prohibit its operation by displaying a warning notice.
(2)Between First Officer's and Third Occupant's seats

- make certain that landing gear Free Fall extension control handle is in Normal position.

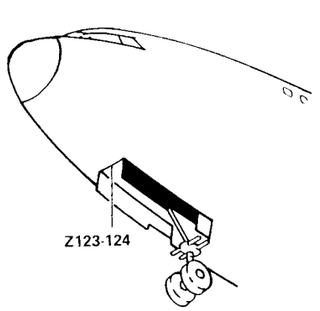
(3)Make certain that safety collars are positioned on door actuating cylinders.
(4)Jack up aircraft until wheels are clear of ground (Ref. 07-11-00, P. Block 1).
(5)Position access platform.
(6)Position safety barriers prohibiting access to door and gear travel ranges.
(7)Depressurize Green hydraulic reservoir (Ref. 29-14-00, P. Block 301) and prohibit its pressurization by displaying a warning notice :
- On panel 429VU to prohibit APU starting
- On hydraulic reservoir pressurization connector.

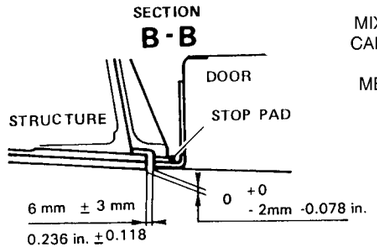
(8)Depressurize Green hydraulic system (Ref. 29-10-00, P. Block 301) and prohibit its pressurization by displaying a warning notice :
- On Green system ground connectors
- On panel 427VU to prohibit operation of Green electric pumps (ELEC PUMPS pushbutton switch).

(9)Connect hydraulic ground power cart to the Green system ground connectors (Ref. 29-10-00, P. Block 301).
(10)Position hydraulic fluid container.

D. Adjustment (Ref. Fig. 501)
(1)Disconnect aircraft lines from nose gear main door actuating cylinders. Install blanking plugs.
(2)Connect hydraulic ground power cart hand pump hoses to actuating cylinder of door to be adjusted.
(3)Remove safety collar from actuating cylinder of door to be adjusted.
WARNING : MAKE CERTAIN THAT DOOR TRAVEL RANGES ARE CLEAR.
(4)Close door to be adjusted slowly by means of hand pump.
(5)Make certain that door locks.
(6)Depressurize door actuating cylinder.
(7)Check adjustment of uplock assembly.
(a)Check that roller is centered on uplock assembly hook : 0 ± 2 mm (0 ± 0.078 in.). If necessary, vary the number of uplock assembly centering shim washers in order to obtain above tolerances.
(b)With door uplocked and zero pressure in the actuating cylinder check that door rests against its stops.
If necessary, adjust vertical position of roller support fitting.
(c)Check that dimension "A" between roller and bottom of uplock assembly hook is 3.4 ±2 mm (0.133 ±0.078 in.).
Adjust horizontal position of roller support fitting by moving support on serrations.
(8)Disconnect door actuating cylinder from its attachment fitting on door (Ref. 32-31-16, P. Block 401).
- Check clearance of actuating cylinder (5 mm) (0.196 in.) in Door Closed position
- Adjust clearance if required
- Connect up actuating cylinder to attachment fitting on door.

(9)Connect hand pump hoses of ground power cart to actuating cylinder of the second door.

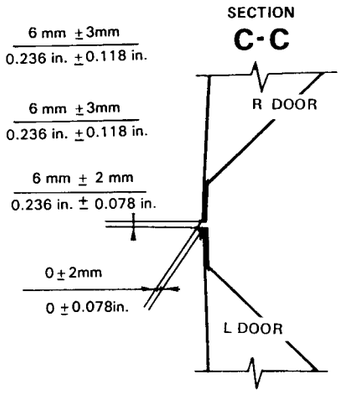


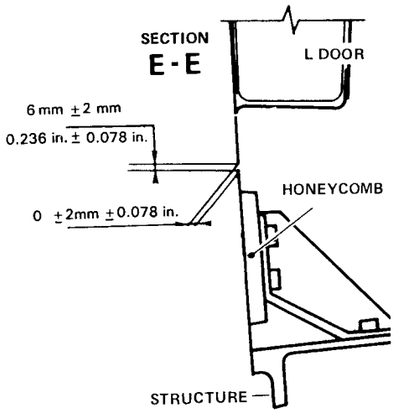


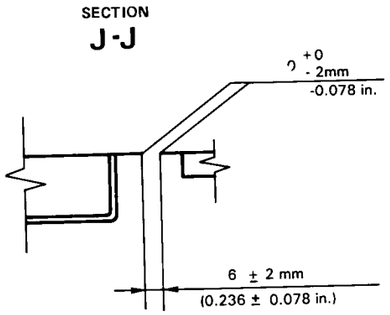
MIXTURE OF A CARBON DOOR AND A METAL DOOR

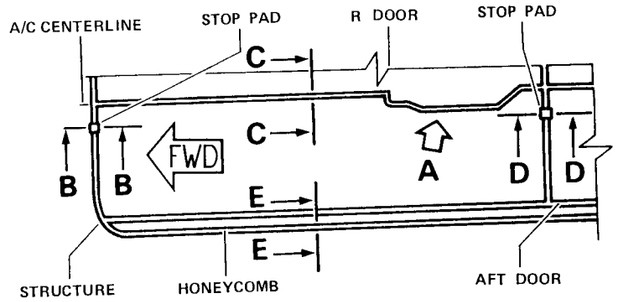
CARBON DOOR

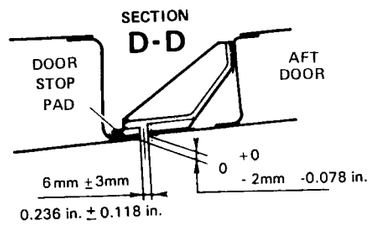
METAL DOOR

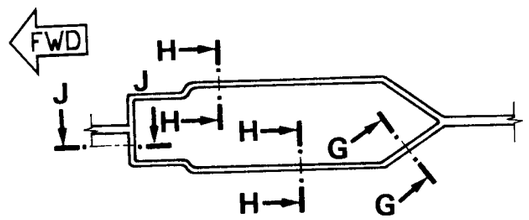


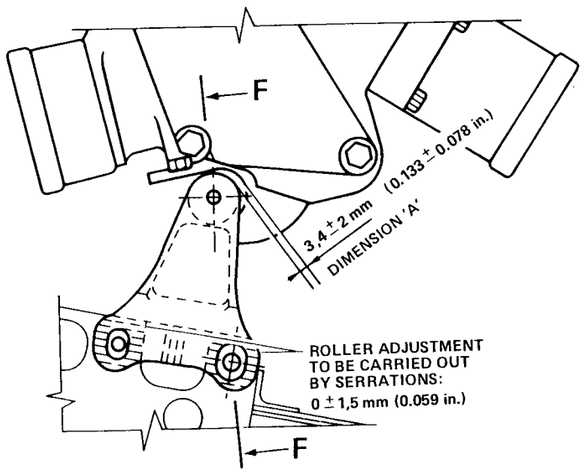


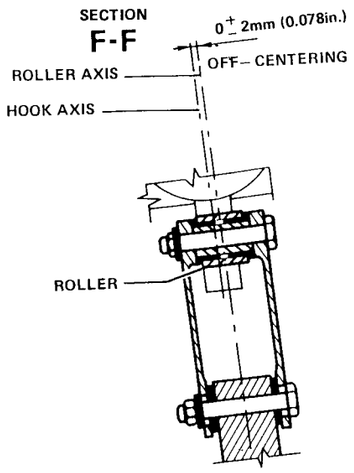


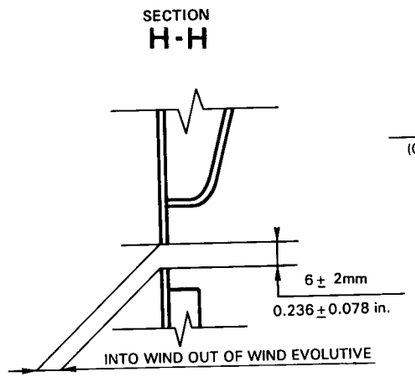


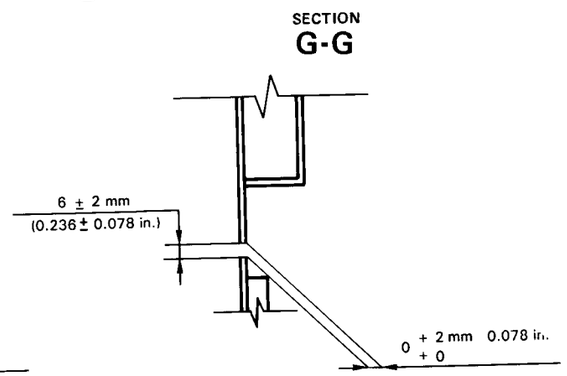












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R

Nose Gear Main Door-Adjustments
Figure 501

EFFECTIVITY: ALL

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(10)Remove safety collar from actuating cylinder of this door.
WARNING : MAKE CERTAIN THAT THE DOOR TRAVEL RANGE IS CLEAR.
(11)By means of hand pump close second door slowly and make certain that it locks.
(12)Depressurize door actuating cylinder.
(13)Check peripheral gap and into wind out of wind clearance of door to be adjusted with respect to fuselage and adjoining door. (Ref. Fig. 501)
R NOTE : On 10% of the periphery, tolerances of gaps and into wind/out of
R wind clearance can be increased up to 50%.
NOTE : The doors sag by 5 mm (0.196 in.) prior to installation on the aircraft. Loading of doors on stops eliminates this and ensures correct flush fitting.
(a)Make certain that peripheral gap is :
- 6 ± 3 mm (0.236 ± 0.118 in.) between door and forward structure
- 6 ± 2 mm (0.236 ± 0.078 in.) between door and honeycomb panel
- 6 ± 2 mm (0.236 ± 0.078 in.) between both main metal doors
- 6 ± 3 mm (0.236 ± 0.118 in.) between both main carbon door
- 6 ± 3 mm (0.236 ± 0.118 in.) between both main doors in case of mixture of a metal door and a carbon door.

(b)Check door into wind out of wind clearance which must be between :
- + 0 and - 2 mm (+ 0 and - 0.078 in.) between door and forward structure.
- 0 ± 2 mm (0 ± 0.078 in.) between door and honeycomb panel.
- 0 ± 2 mm (0 ± 0.078 in.) between both main doors.

WARNING : MAKE CERTAIN THAT NOSE GEAR DOOR TRAVEL RANGES ARE CLEAR.
(14)Unlock right door
(15)Open right door by means of hand pump
(16)With right door in open position, unlock left door
(17)Open left door until it reaches stop.
(18)Make certain that piston rod travel is 195 mm (7.677 in.).
(19)Place safety collars on nose gear door actuating cylinders.
(20)If necessary, adjust door to obtain correct peripheral gap taking into account the discrepancies previously noted.
(21)Depressurize door actuating cylinders.
(22)Disconnect hand pump hoses from actuating cylinders.
(23)Make certain that nose and main gear door ground opening control handles are in OPENED position
(24)Remove blanking plugs from aircraft hydraulic lines and connect to actuating cylinders.
(25)Remove hydraulic fluid container.
(26)Make certain that safety collars are in position on nose and main gear door actuating cylinders.
WARNING : MAKE CERTAIN THAT MAIN LANDING GEAR SAFETY PINS ARE IN POSITION.
(27)Place nose gear door ground opening control handles in CLOSED position.
(28)Pressurize hydraulic reservoirs (Ref. 29-14-00, P. Block 301).
WARNING : MAKE CERTAIN THAT LANDING GEAR AND DOOR TRAVEL RANGES ARE CLEAR.
(29)Remove safety pins from nose landing gear.
(30)Make certain that hydraulic ground power cart is set to minimum pressure and flow and pressurize Green hydraulic system (Ref. 29-10-00, P. Block

301).
(31)Energize the aircraft electrical network (Ref. 24-41-00, P. Block 301).
(32)On panel 4VU
- place landing gear control lever in UP position.
(33)Adjust hydraulic ground power cart delivery to retract landing gear as slowly as possible.
(34)On panel 4VU
- place landing gear control lever in Neutral position and prohibit its operation by displaying a warning notice.
(35)Depressurize Green hydraulic system (Ref. 29-10-00, P. Block 301).
(36)With gear uplocked, de-energize the aircraft electrical network (Ref. 24-41-00, P. Block 301).
(37)Disconnect actuating cylinder of door to be adjusted from its attachment fitting on door.
(38)Remove safety collar from actuating cylinder of nose gear door to be adjusted.
(39)Manually retract actuating cylinder sliding rod.
(40)Manually close the replacement nose gear door.
(41)Check that peripheral gap between door to be adjusted and aft door is 6 ± 3 mm (0.236 ± 0.118 in.) (Ref. Fig. 501).
(42)Check that main door (actuating cylinder disconnected) in uplocked position and bearing against aft door reduces the gap between aft door stop and structure from 2.5 +0.5, +0 mm (0.098 +0.019, +0 in.) to zero.
NOTE : If main door does not bear against stops at FR11 and gap between aft door stop and structure is not reduced to zero, adjust main door uplock roller to achieve this.
After adjustment check that dimension 'A' between roller and bottom of uplock hook is 3.4 ±2 mm (0.133 ±0.078 in.).
(43)Make certain that main door stops bear against leg door rollers. If necessary adjust length of fork between nose gear leg and leg door mounting fitting (Ref. 32-22-15, P. Block 401).
(44)Check into wind out of wind clearance between main door and leg door. It must range from :
- FWD part leg door 0 + 0, - 2 mm (0 + 0 - 0.078 in.).
- SIDE part leg door : Into wind out of wind tolerances are evolutive.
- AFT part leg door 0 + 0, + 2 mm (0 + 0, + 0.078 in.).
(45)Manually open door concerned.
(46)Manually extend actuating cylinder sliding rod.
(47)Install safety collar on door actuating cylinder.
(48)Connect actuating cylinder to its attachment on door.
WARNING : MAKE CERTAIN THAT LANDING GEAR AND DOOR TRAVEL RANGES ARE CLEAR.
(49)Energize the aircraft electrical network (Ref. 24-41-00, P. Block 301).
(50)Make certain that electronics racks ventilation is correct.
(51)Pressurize Green hydraulic system (Ref. 29-10-00, P. Block 301).
(52)On panel 4VU
- place landing gear control lever in DOWN position.
(53)With landing gear downlocked, install strut safety pins
(54)Depressurize Green hydraulic system (Ref. 29-10-00, P. Block 301).
(55)De-energize the aircraft electrical network (Ref. 24-41-00, P. Block

301).
(56)Place nose gear door ground opening control handles in **OPENED** position.
(57)If necessary, adjust door with respect to discrepancies noted : peripheral gap and flush fitting between main door and aft door.

E. Test
(1)Carry out a landing gear Normal extension and retraction functional test (Ref.32-31-00, P. Block 501)

F. Close-Up
(1)Remove hydraulic fluid container.
(2)Make certain that working area is clean and clear of tools and miscellaneous items of equipment.
WARNING : MAKE CERTAIN THAT AREA UNDER THE AIRCRAFT IS CLEAR.
(3)Lower the aircraft onto its wheels (Ref. 07-11-00, P. Block 1).
WARNING : MAKE CERTAIN THAT DOOR TRAVEL RANGES ARE CLEAR.
(4)Close landing gear doors (Ref. 32-12-11, P. Block 301 and Ref. 32-22-11, P. Block 301).
(5)Replenish hydraulic reservoir if necessary (Ref. 12-12-29, P. Block 1).
(6)Disconnect hydraulic ground power cart (Ref. 29-10-00, P. Block 301).
(7)Disconnect electrical ground power unit (Ref. 24-41-00, P. Block 301).
(8)Remove warning notice.
(9)Close access doors, remove access platform and safety barriers.
(10)Remove all ground handling and maintenance equipment, standard and special tools, together with replenishing equipment, all access equipment and miscellaneous items.

REFERENCE : CONFIGURATION DEVIATION LIST (CDL) SECTION 6 03 52

1. Nose Gear Main Door Deactivation

A. Equipment and Materials

ITEM	DESIGNATION
(1)98A32301012000	Pin-Rigging Nose Gear Sequence Valve-Control
(2)	Blanking Plugs (MS21913)
Referenced Procedures	
- 32-22-11, P. Block 401	Nose Gear Main Door
R - 32-22-13, P. Block 401	Nose Gear Aft Door
- 32-31-16, P. Block 401	Nose Gear Door Actuating Cylinder
- 32-31-18, P. Block 401	Nose Gear Sequence Valve

B. Procedure

(1)Remove nose gear main doors (Ref. 32-22-11, P. Block 401).
R (2)Remove nose gear aft doors (Ref. 32-22-13, P. Block 401).
R (3)Remove rod connecting door to sequence valve (Ref. 32-31-18, P. Block 401).
R (4)Rig sequence valve in "0" position, safety rigging pin on valve input lever using lockwire. Remove streamer from rigging pin 98A32301012000.
R (5)Remove door actuating cylinder (Ref. 32-31-16, P. Block 401).
R (6)Blank hydraulic lines using blanking plugs MS21913.
R (7)Secure hydraulic lines to prevent movement.

2. Nose Gear Main Door Reactivation

A. Equipment and Materials

ITEM	DESIGNATION
Referenced Procedures	
- 32-22-11, P. Block 401	Nose Gear Main Door
R - 32-22-13, P. Block 401	Nose Gear Aft Door
- 32-31-16, P. Block 401	Nose Gear Door Actuating Cylinder
- 32-31-18, P. Block 401	Nose Gear Sequence Valve

B. Procedure

(1)Install nose gear main doors (Ref. 32-22-11, P. Block 401).
R (2)Install nose gear aft doors (Ref. 32-22-13, P. Block 401).
R (3)Install nose gear door actuating cylinder (Ref. 32-31-16, P. Block 401).
R (4)Install rod connecting door to sequence valve (Ref. 32-31-18, P. Block 401).
CAUTION : DO NOT FORGET TO REMOVE RIGGING PIN 98A32301012000.

WARNING : CHECK THAT THE LANDING GEAR GROUND SAFETIES INCLUDING WHEEL CHOCKS ARE IN POSITION.
BEFORE APPLYING OR RELIEVING HYDRAULIC SYSTEM PRESSURE, MAKE CERTAIN THAT THE TRAVEL RANGES OF THE CONTROL SURFACES ARE CLEAR.
BEFORE PRESSURIZING HYDRAULIC SYSTEMS, CHECK THAT ALL CONTROLS ARE SET TO CORRESPOND WITH THE ACTUAL POSITION OF THE SERVICES THEY OPERATE.
BEFORE POWER IS SUPPLIED TO THE AIRCRAFT, MAKE CERTAIN THAT ELECTRICAL CIRCUITS UPON WHICH WORK IS IN PROGRESS ARE ISOLATED.
BEFORE PRESSURIZING HYDRAULIC SYSTEMS, MAKE CERTAIN THAT HYDRAULIC SYSTEM UNDER MAINTENANCE HAS BEEN ISOLATED.

1. Equipment and Materials

	ITEM	DESIGNATION
	A. 98AMS172321	Adaptor - Wrench
	B.	Cart-Ground Power Supply and Preliminary Testing, 150 L/min. (39.6 US GPM), Hydraulic
	C.	Warning Notices
	D.	Safety Barriers
	E.	Access Platform 2 m (6 ft. 7 in.)
	F. Material No. 04-004	Common Greases (Ref. 20-31-00)
	G. Material No. 04-022	Common Greases (Ref. 20-31-00)
R	H. Material No. 09-016	Sealant (Ref. 20-31-00)
R	J. Material No. 11-002	Cleaning Agents (Ref. 20-31-00)
	Referenced Procedures	
	- 07-11-00, P. Block 1	Jacking For Aircraft Maintenance Operations
	- 12-22-32, P. Block 1	Lubrication - Landing Gear
	- 24-41-00, P. Block 301	AC External Power Control
	- 29-10-00, P. Block 301	Main Hydraulic Power-Pressurization/Depressurization
	- 29-14-00, P. Block 301	Hydraulic Reservoir Pressurizing System
	- 32-12-11, P. Block 301	Main Gear Main Door - (Ground Door(s) Opening)
	- 32-22-11, P. Block 301	Nose Gear Main Door - (Ground Door(s) Opening)
	- 32-22-11, P. Block 401	Nose Gear Main Door
	- 32-22-11, P. Block 501	Nose Gear Main Doors
	- 32-31-00, P. Block 501	Normal Extension and Retraction

2. Procedure

A. Job Set-Up
(1)On panel 4VU
- make certain that landing gear control lever is in **DOWN** position and prohibit its operation by displaying a warning notice.

(2)Between First Officer's and Third Occupant's seats
- make certain that landing gear Free Fall extension control handle is in Normal position.

(3)Position access platform.

(4)Position safety barriers prohibiting access to gear door travel ranges.
WARNING : MAKE CERTAIN THAT DOOR TRAVEL RANGES ARE CLEAR.
(5)Open nose gear and main gear doors (Ref. 32-12-11, P. Block 301 and 32-22-11, P. Block 301).
WARNING : WHEN DOORS ARE OPEN MAKE CERTAIN THAT SAFETY COLLARS ARE POSITIONED ON DOOR ACTUATING CYLINDERS.
(6)Depressurize Green hydraulic system (Ref. 29-10-00, P. Block 301) and prohibit its pressurization by displaying a warning notice :
- On Green hydraulic system ground connectors
- On panel 427VU to prohibit operation of Green electric pumps (ELEC PUMPS pushbutton switch).
(7)Depressurize Green hydraulic reservoir (Ref. 29-14-00, P. Block 301) and prohibit its pressurization by displaying a warning notice :
- On panel 429VU to prohibit APU starting
- On reservoir pressurization connector
(8)Connect hydraulic ground power cart to Green system ground connectors (Ref. 29-10-00, P. Block 301).

B. Removal
(Ref. Fig. 401)

R **ON A/C 105-200,

R Post SB 32-2095 For A/C 105-200,

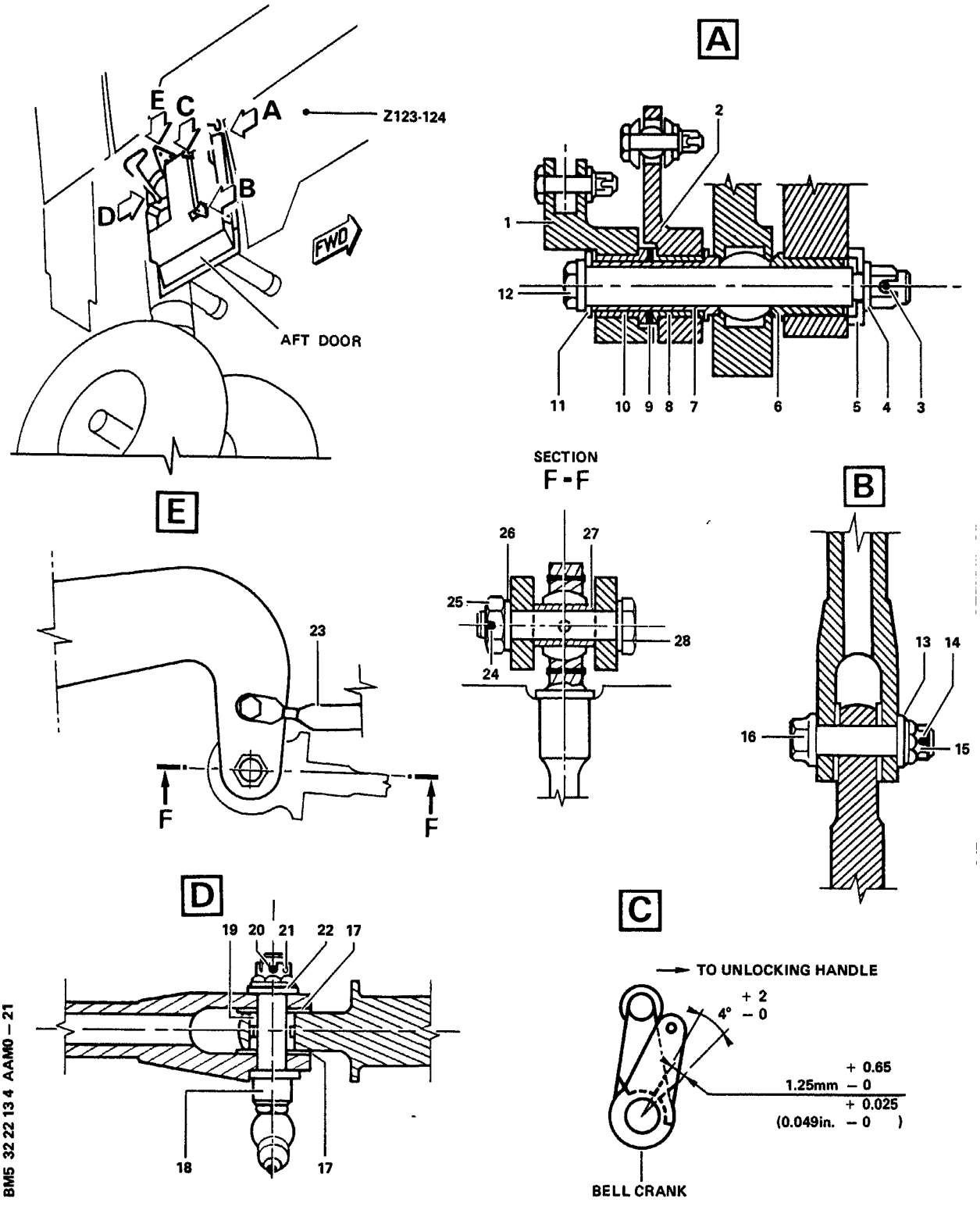
R (Ref. Fig. 402)

R **ON A/C ALL

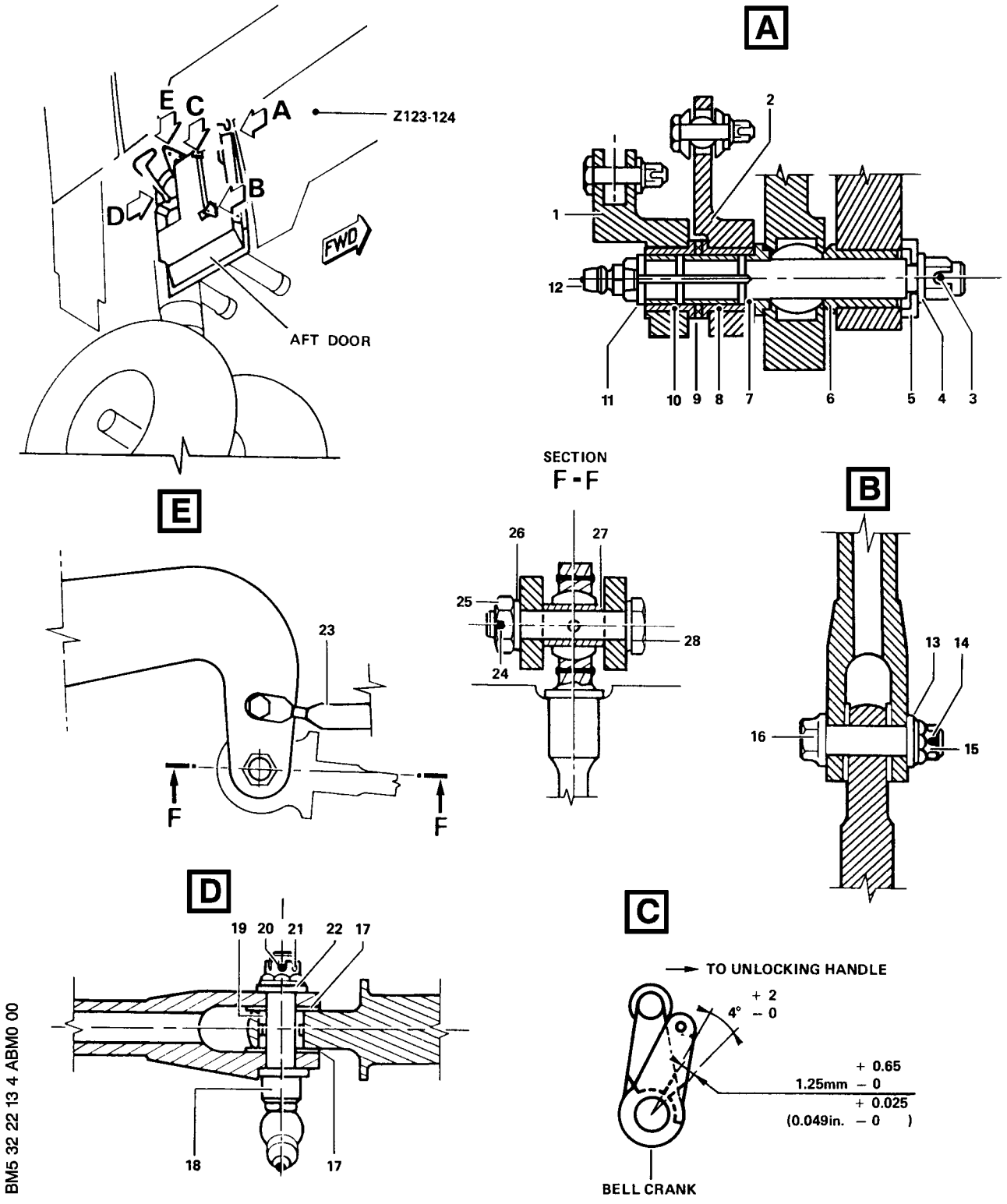
(1)Disconnect bonding jumpers (23).
(2)Disconnect control rod from ground door opening control handle. Remove cotter pin (14) and nut (15), bolt (16), washer (13).
(3)Disconnect rotating control rod swivel end. Remove cotter pin (20) and nut (21), washer (22), and shouldered pin (18).
(4)Disconnect door from its aft attach fitting.
Remove cotter pin (24), nut (25), washer (26) and pin (28). Retain spacer (27).
(5)Disconnect door from its forward attach fitting.
Support weight of door. Remove cotter pin (3) and nut (4), washer (5) and pin (12). Retain shouldered bushing (6).
Make certain that spacer (7), bushings (8) and (10) with friction washer (9) are installed on bellcranks (1) and (2). Retain washer (11).

C. Preparation of Replacement Component
Depreserve replacement door by removing external protective coverings. Clean with Material No. 11-002 and dry with filtered compressed air. Make certain that parts for installation are in correct condition (replace damaged parts if necessary).

D. Installation



Nose Gear Aft Door - Attachments
Figure 401



BM5 32 22 13 4 ABM0 00

Nose Gear Aft Door - Attachments
Figure 402

R

(Ref. Fig. ,)

R **ON A/C 105-200,

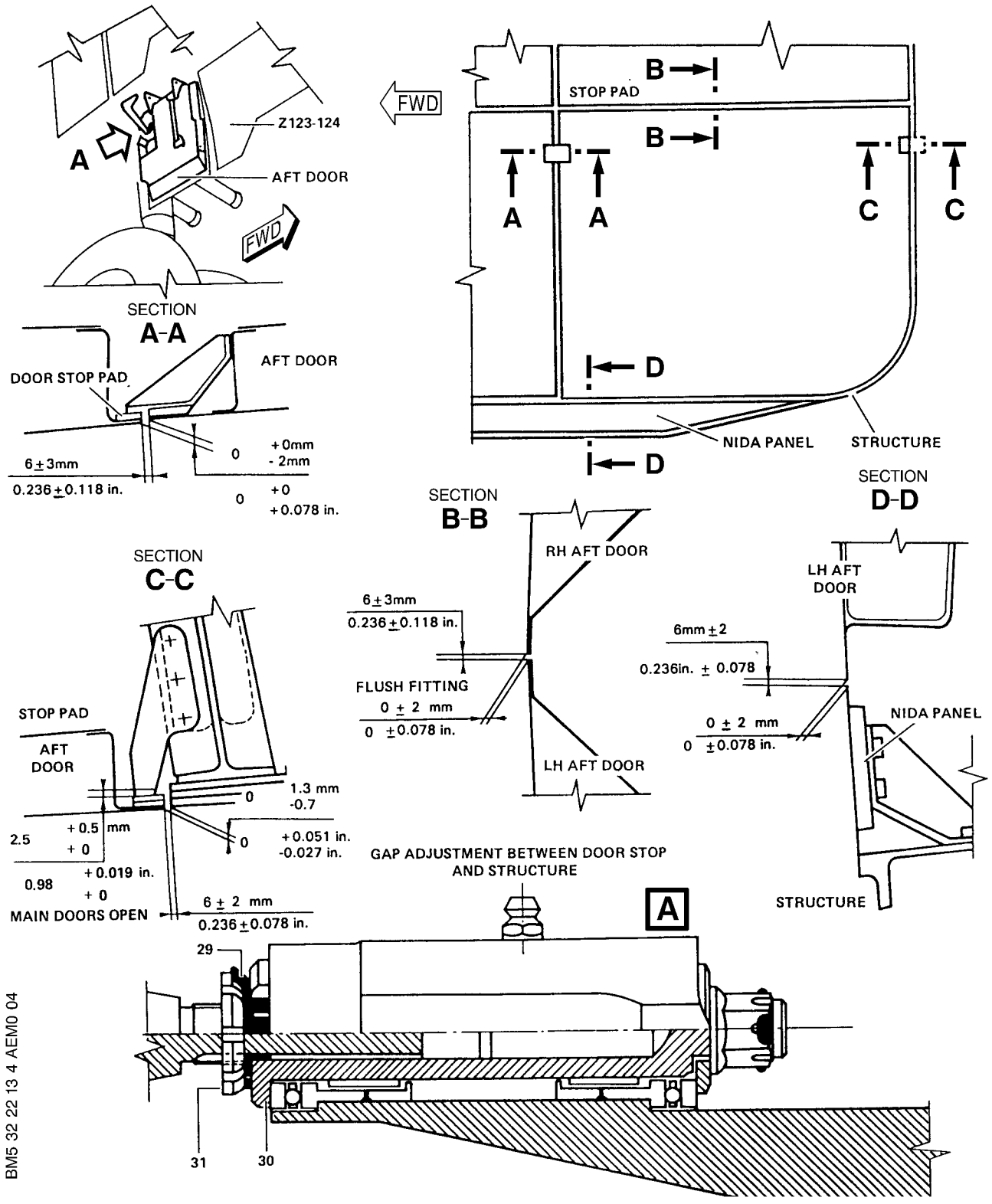
R Post SB 32-2095 For A/C 105-200,

R (Ref. Fig. 402, 403)

R **ON A/C ALL

(1)Connect aft door to its forward attach fitting.
(a)Make certain that shouldered bushing (6) is correctly located.
(b)Make certain that bushings (8) and (10) on bellcranks (2) and (1) and spacer (7) with friction washer (9) are correctly located.
NOTE : Coat pin (12) with Material No. 04-004 or Material No. 04-022 to facilitate installation.
NOTE : Do not mix Material No. 04-004 with Material No. 04-022. You can use Material No. 04-022 as an alternative to Material No. 04-004. Clean and degrease the parts before you use Material No. 04-022.
(c)Install washer (11), pin (12) and washer (5).
(d)Install nut (4). TORQUE nut to 2 m.daN and safety with a cotter pin (3).
(2)Connect aft door to its aft attach fitting.
NOTE : Coat pin (28) with Material No. 04-004 to facilitate installation.
(a)Make certain that spacer (27) is correctly located.
(b)Install pin (28), washer (26) and nut (25). Safety nut (25) with cotter pin (24).
CAUTION : ATTACH ROTATING CONTROL ROD TO LANDING GEAR TO AVOID ALL RISKS OF DAMAGE DURING GEAR RETRACTION AND CONNECT BONDING JUMPERS (23).
(3)Connect ground door opening control rod.
(a)Install bolt (16), washer (13), nut (15) and safety nut (15) with cotter pin (14).
(4)Do not adjust control handle.

C. Adjustment of the Aft Door
(1)Jack up aircraft until wheels are clear of ground (Ref. 07-11-00, P. Block 1).
(2)Make certain that the safety collars are positioned on nose and main gear door actuating cylinders.
WARNING : MAKE CERTAIN THAT THE MAIN LANDING GEAR GROUND SAFETIES ARE IN POSITION
(3)Place nose and main landing gear door ground opening control handle in CLOSED position.
(4)Pressurize Green hydraulic reservoir (Ref. 29-14-00, P. Block 301).
WARNING : MAKE CERTAIN THAT LANDING GEAR AND DOOR TRAVEL RANGES ARE CLEAR.
(5)Remove safety pin from nose gear telescopic drag strut.



Nose Gear Aft Door - Adjustments
Figure 403

R

(6)On panel 4VU
- make certain that landing gear Normal control lever is in **DOWN** position.

(7)Make certain that the hydraulic ground power cart fluid flowrate and pressure are set to minimum.

(8)Energize the aircraft electrical network (Ref. 24-41-00, P. Block 301).
- Make certain that electronics racks ventilation is correct.

(9)Pressurize Green hydraulic system (Ref. 29-10-00, P. Block 301).

WARNING : OPEN, SAFETY AND TAG THE FOLLOWING CIRCUIT BREAKER :

PANEL	SERVICE	IDENT.	LOCATION
133VU	HYDRAULIC/ELEC/PUMPS/WARN	4GE	331/V60

(10)On panel 4VU
- place landing gear control lever in UP position.

(11)Retract nose landing gear as slowly as possible by adjusting ground power cart flowrate and pressure.

(12)On panel 4VU
- place landing gear control lever in Neutral position and prohibit its operation by displaying a warning notice.

(13)Shut down hydraulic ground power cart and depressurize Green hydraulic system (Ref. 29-10-00, P. Block 301).

(14)De-energize the aircraft electrical network (Ref.24-41-00, P. Block 301).

(15)Make certain that safety collars are installed on actuating cylinders of open doors

(16)Connect rotating control rod to door.

NOTE : Coat shouldered pin (18) with Material No. 04-004 or Material No. 04-022 to facilitate installation.

NOTE : Do not mix Material No. 04-004 with Material No. 04-022. You can use Material No. 04-022 as an alternative to Material No. 04-004. Clean and degrease the parts before you use Material No. 04-022.

(a)Make certain that ring (19) is correctly located.

(b)Install shouldered pin (18); friction washers (17), washer (22) and nut (21). Safety nut (21) with cotter pin (20).

(17)Check that gap between door stop and structure is 2.5 +0.5 +0 mm (0.098 +0.019 +0 in.).

(18)If gap is out of tolerance

(a)Disconnect rotating control rod at door.

(b)Adjust length of rotating control rod
- fold back tabs of lockwasher (29) and loosen nut (31)
- rotate threaded pin (30) as required
- **TORQUE** nut (31) to 1 m.daN (88.47 lbf.in.) using wrench adaptor 98AMS172321 and safety by folding tabs of lockwasher (29) against threaded pin (30) and nut (31).

(c)Make certain that threaded pin (30) rotates freely.

(d)Apply sealant Material No. 09-016 around nut (31) and washer (29).

(e)Connect rotating control rod to door (Ref. paragraph 20).

(19)Check peripheral gap of door to be adjusted with respect to fuselage

and to adjacent door. Gap must be as follows (Ref. Fig. 403) :
- between the two aft doors : 6 ± 3 mm (0.236 ± 0.118 in.).
- between door and structure : 6 ± 2 mm (0.236 ± 0.078 in.).
- between door and honeycomb panel : 6 + 2 mm (0.236 ± 0.078 in.).

(20)Disconnect actuating cylinder from main door adjacent to replacement aft door.
(21)Remove safety collar from actuating cylinder of nose gear main door adjacent to replacement aft door.
(22)Manually retract actuating cylinder sliding rod.
(23)Manually close main door
(24)With main door closed, check that gap between aftdoor rear stop and structure is reduced from 2.5 (+0.5, +0) mm (0.098 +0.019 +0 in.) to zero.
(25)If necessary, adjust nose gear main door (Ref. 32-22-11, P. Block 501).
(26)Check door into wind out of wind clearance :
clearance must be
- 0 +0 -2 mm (0 +0 -0.078 in.) between aft door and main door.
- between 0 +2 -2 mm (0 +0.078 -0.078 in.) between the two aft doors.
- 0 +2 -2 mm (0 +0.078 -0.078 in.) between door and honeycomb panel.
- 0 +1.3 -0.7 mm (0 +0.051 -0.027 in.) between door and structure.

(27)Check peripheral gap of door to be adjusted with respect to main door. It must be : 6 ± 3 mm (0.236 ± 0.118 in.) between the relevant door and the main door.
(28)Manually open door.
(29)Manually extend actuating cylinder sliding rod.
(30)Install safety collar on door actuating cylinder.
(31)Connect actuating cylinder to attachment fitting on door (Ref. 32-22-11, P. Block 401).
WARNING : MAKE CERTAIN THAT LANDING GEAR AND DOOR TRAVEL RANGES ARE CLEAR.
(32)Energize the aircraft electrical network (Ref. 24-41-00, P. Block 301).
- Make certain that electronics racks ventilation is correct

(33)Pressurize Green hydraulic system (Ref. 29-10-00, P. block 301).
(34)Carry out a normal landing gear extension
- On panel 4VU
  - place landing gear control lever in **DOWN** position.

(35)Install safety pins in main gear brace struts and nose gear telescopic drag strut.
(36)Depressurize Green hydraulic system (Ref. 29-10-00, P. Block 301).
(37)De-energize the aircraft electrical network (Ref.24-41-00, P. Block 301).
(38)Install safety collars on nose gear main door actuating cylinders.
(39)Adjust nose landing gear door ground opening control.
(a)Place nose landing gear door control handle in closed position.
(b)If necessary, adjust the length of rotating control rod to obtain a gap of 4° +2° -0° (1.25 mm + 0.65 mm - 0 mm).(0.050 in. + 0.025 in. - 0 in.) between bellcrancks (1) and (2).
(c)If necessary, tighten and safety rod adjustable end fitting.
(d)Place nose landing gear door ground opening control handle in **OPENED** position and make certain that torque shaft is in stop position.

(40)According to peripheral gaps noted in steps (22) and (30), trim contour of door.
(41)Remove safety collars from nose gear main door actuating cylinders.
(42)Place nose gear door ground opening control handle in CLOSED position.
(43)Energize the aircraft electrical network (Ref. 24-41-00, P. Block 301)
- Make certain that electronics racks ventilation is correct.
WARNING : MAKE CERTAIN THAT GEAR AND DOOR TRAVEL RANGES ARE CLEAR.
(44)Remove safety pin from nose landing gear telescopic drag strut.
(45)Make certain that the hydraulic ground power cart fluid flowrate and pressure are set to minimum and pressurize Green hydraulic system (Ref. 29-10-00, P. Block 301).
WARNING : ON PANEL 427VU, MAKE CERTAIN THAT ELEC PUMP PUSHBUTTON SWITCH IS RELEASED (OUT).
(46)On panel 4VU
- place landing gear control lever in UP position.
(47)Set hydraulic ground power unit flowrate in order to retract gears and close doors as slowly as possible.
(48)Place landing gear control lever in Neutral position and prohibit its operation by displaying a warning notice.
(49)Shut down hydraulic ground power cart (Ref. 29-10-00, P. Block 301).
(50)De-energize the aircraft electrical network (Ref. 24-41-00, P. Block 301).
(51)Check that doors have been adjusted so that clearances and flush fitting agree those noted in steps (22), (29) and (30).
NOTE : Make certain that door bears against rear stop.
WARNING : MAKE CERTAIN THAT GEAR AND DOOR TRAVEL RANGES ARE CLEAR.
(52)Remove safety clip and tag close circuit breaker 4GE
(53)Energize the aircraft electrical network (Ref. 24-41-00, P. Block 301).
- Make certain that electronics racks ventilation is correct.
(54)Pressurize Green hydraulic system (Ref. 29-10-00, P. Block 301).
(55)Place landing gear control lever in DOWN position.
(56)Make certain that the landing gears are downlocked and install safety pins in main gear brace struts and nose gear telescopic drag strut.
(57)Depressurize Green hydraulic system (Ref. 29-10-00, P. Block 301).
(58)De-energize the aircraft electrical network (Ref. 24-41-00, P. Block 301).
(59)Carry out lubricating operations (Ref. 12-22-32, P. Block 1).

D. Test
(1)Carry out a Normal gear extension and retraction functional test (Ref. 32-31-00,P. Block 501).

E. Close-Up
(1)Make certain that working area is clean and clear of tools and miscellaneous items of equipment.
WARNING : MAKE CERTAIN AREA UNDER THE AIRCRAFT IS CLEAR.
(2)Lower the aircraft onto its wheels (Ref. 07-11-00, P. Block 1).
WARNING : MAKE CERTAIN THAT DOOR TRAVEL RANGES ARE CLEAR.
(3)Close landing gear doors (Ref. 32-12-11, P. Block 301 and 32-22-11, P. Block 301).
(4)Disconnect hydraulic ground power cart (Ref. 29-10-00, P. Block 301).

(5)Remove warning notices.
(6)Close access doors, remove access platform and safety barriers.
(7)Remove all ground handling and maintenance equipment, standard and special tools, together with ground power and replenishing equipment, all access equipment and miscellaneous items.

WARNING : CHECK THAT THE LANDING GEAR GROUND SAFETIES INCLUDING WHEEL CHOCKS ARE IN POSITION.
BEFORE APPLYING OR RELIEVING HYDRAULIC SYSTEM PRESSURE, MAKE CERTAIN THAT THE TRAVEL RANGES OF THE CONTROL SURFACES ARE CLEAR.
BEFORE PRESSURIZING HYDRAULIC SYSTEMS, CHECK THAT ALL CONTROLS ARE SET TO CORRESPOND WITH THE ACTUAL POSITION OF THE SERVICES THEY OPERATE.
BEFORE POWER IS SUPPLIED TO THE AIRCRAFT, MAKE CERTAIN THAT ELECTRICAL CIRCUITS UPON WHICH WORK IS IN PROGRESS ARE ISOLATED.
BEFORE PRESSURIZING HYDRAULIC SYSTEMS, MAKE CERTAIN THAT HYDRAULIC SYSTEM UNDER MAINTENANCE HAS BEEN ISOLATED.

1. Equipment and Materials

ITEM	DESIGNATION
A.	Cart-Ground Power Supply and Preliminary Testing 150 1/min. (39.6 US GPM), Hydraulic
B.	Access Platform 2 m (6 ft 7 in.)
C.	Warning Notices
D.	Safety Barriers
R E. Material No. 11-002	Cleaning Agents (Ref. 20-31-00)
Referenced Procedures	
- 07-11-00, P. Block 1	Jacking for Aircraft Maintenance Operations
- 24-41-00, P. Block 301	AC External Power Control
- 29-10-00, P. Block 301	Main Hydraulic Power-Pressurization/Depressurization
- 29-14-00, P. Block 301	Hydraulic Reservoir Pressurization/Depressurization
- 32-12-11, P. Block 301	Main Gear Main Door-(Ground Door(s) Opening)
- 32-31-00, P. Block 501	Normal Extension and Retraction

2. Procedure

A. Job Set-Up
(1)On panel 4VU
- make certain that landing gear control lever is in DOWN position and prohibit its operation by displaying a warning notice.

(2)Between First Officer's and Third Occupant's seats
- make certain that landing gear Free Fall extension control handle is in Normal position and prohibit its operation by displaying a warning notice.

(3)Position access platform.
(4)Position safety barriers prohibiting access to gear door travel ranges.
WARNING : MAKE CERTAIN THAT DOOR TRAVEL RANGES ARE CLEAR.
(5)Open main gear doors (Ref. 32-12-11, P. Block 301)
WARNING : WHEN DOORS ARE OPEN MAKE CERTAIN THAT SAFETY COLLARS ARE POSITIONED ON DOOR ACTUATING CYLINDERS.
(6)Depressurize Green hydraulic reservoir (Ref. 29-14-00, P. Block 301)

and prohibit its pressurization by displaying a warning notice :
- On panel 429VU, to prohibit APU starting,
- On reservoir pressurization connector.

(7)Depressurize Green hydraulic system (Ref. 29-10-00, P. Block 301) and prohibit its pressurization by displaying a warning notice :
- On Green hydraulic system ground connectors
- On panel 427VU to prohibit operation of Green electric pumps (ELEC PUMPS pushbutton switch)

(8)Jack up aircraft until wheels are clear of ground (Ref. 07-11-00, P. Block 1).

(9)Connect hydraulic ground power cart to Green system connectors (Ref. 29-10-00, P. Block 301).

B. Removal (Ref. Fig. 401)

(1)Disconnect rod (9) and bracket (8). Remove nut (2), bushing (3) and bolt (1).

(2)Disconnect mounting fitting (6). Remove nuts (4), bushing (5) and bolts (7).

C. Preparation of Replacement Component

Depreserve replacement door by removing outer protective coverings. Clean with Material No. 11-002, dry with filtered compressed air. Make certain that parts for installation are in correct condition (replace any damaged parts).

D. Installation (Ref. Fig. 401, 402)

(1)Connect door to mounting fitting (6). Install bolts (7), bushing (5) and nuts (4).

(2)Connect rod (9) and bracket (8). Install bolt (1), bushing (3) and nut (2).

(3)Pressurize Green hydraulic reservoir (Ref. 29-14-00, P. Block 301).

WARNING : MAKE CERTAIN THAT MAIN GEAR SAFETY PINS ARE INSTALLED AND THAT SAFETY COLLARS ARE INSTALLED ON ACTUATING CYLINDERS OF OPEN DOORS.

WARNING : MAKE CERTAIN THAT NOSE GEAR AND DOOR TRAVEL RANGES ARE CLEAR.

(4)Remove safety pin from nose gear telescopic drag strut.

(5)Energize the aircraft electrical network (Ref.24-41-00, P. Block 301).
- Make certain that electronics racks ventilation is correct.

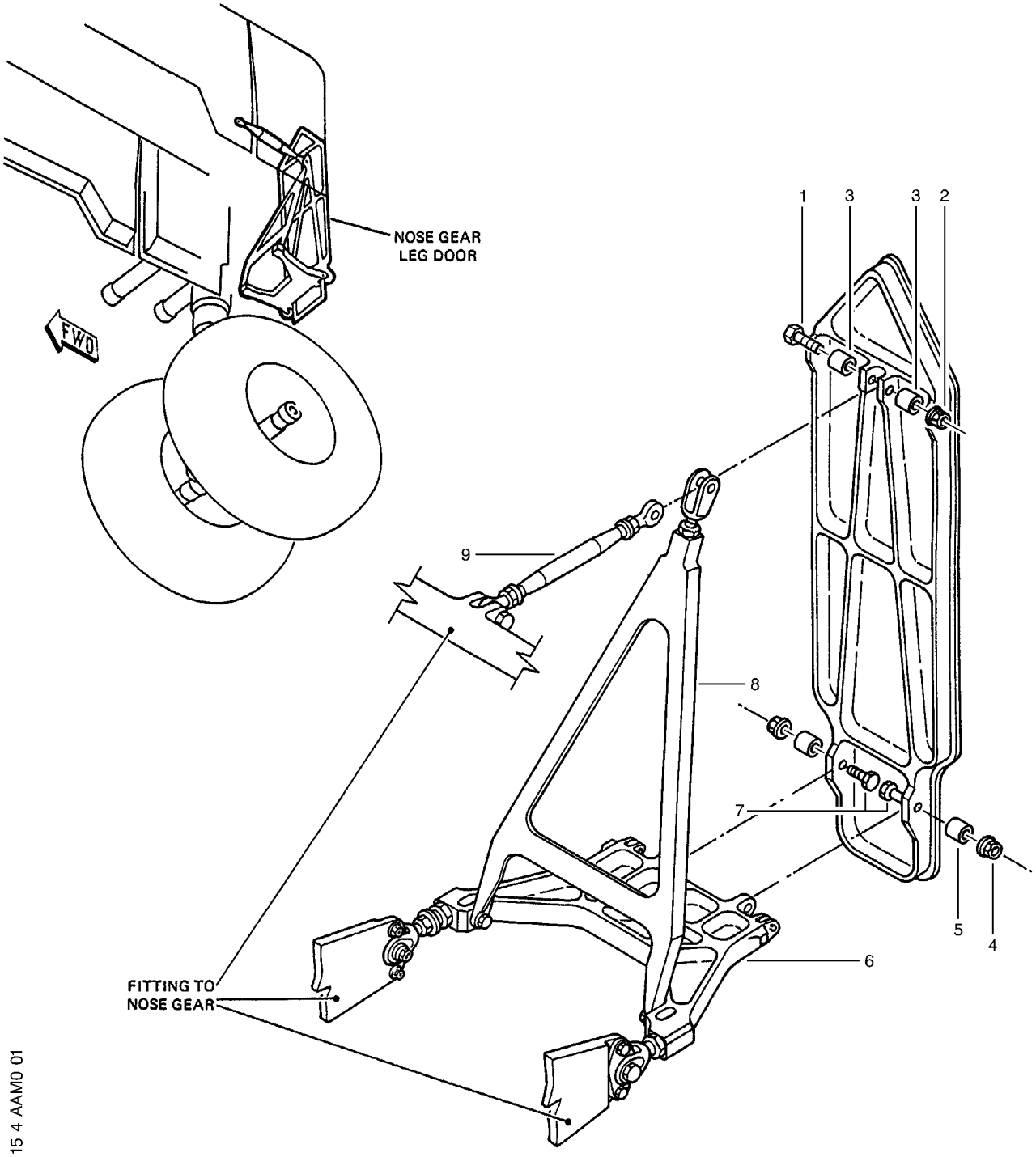
(6)Make certain that the hydraulic ground power cart delivery and pressure are set at minimum.

WARNING : OPEN, SAFETY AND TAG THE FOLLOWING CIRCUIT BREAKER :

PANEL	SERVICE	IDENT.	LOCATION
133VU	HYDRAULIC/ELEC/PUMPS/WARN	4GE	331/V60

(7)On panel 4VU
- place landing gear control lever in UP position.

(8)Adjust the hydraulic ground power cart delivery. Retract gear and close doors as slowly as possible.



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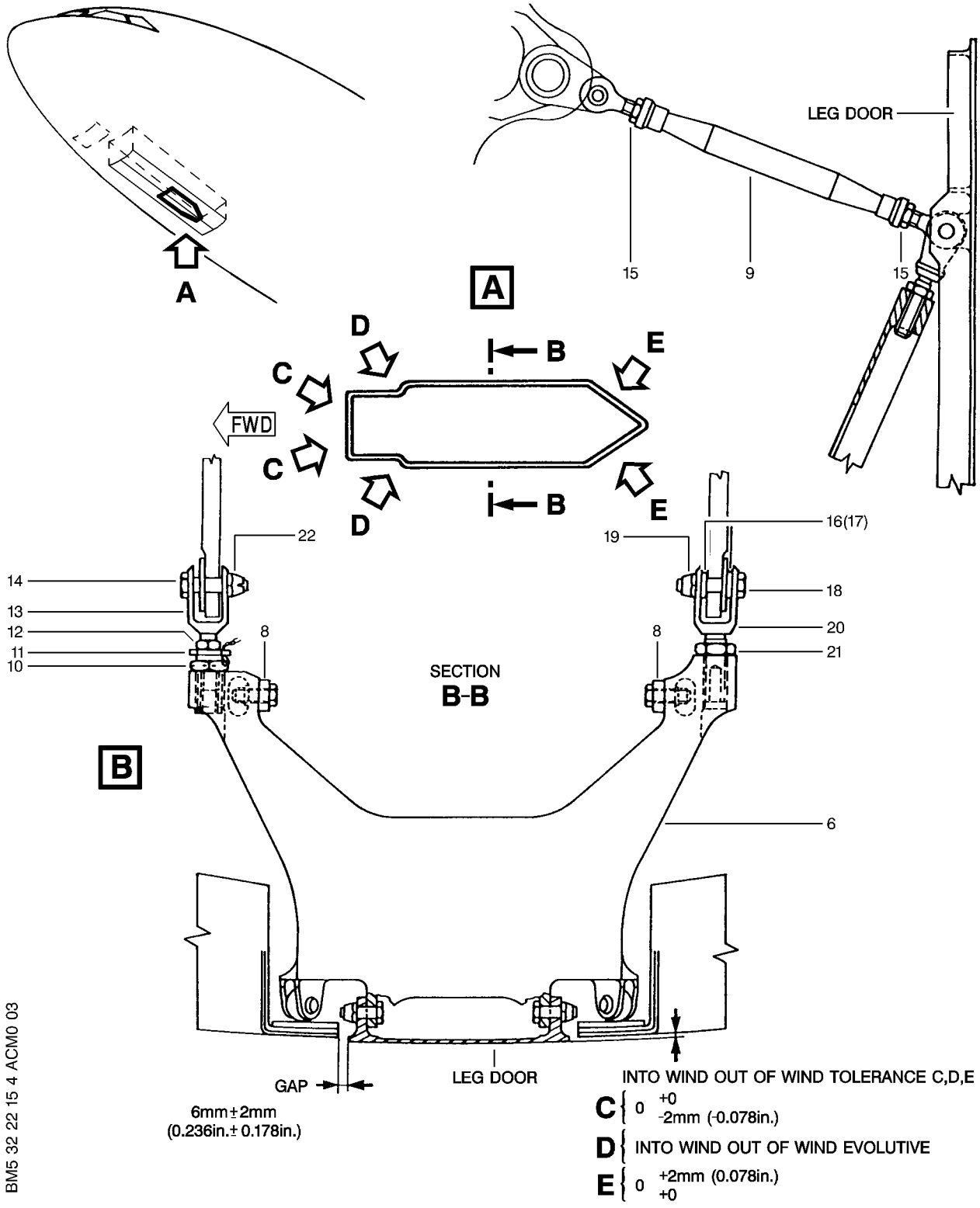
Nose Gear Leg Door Fittings
Figure 401

R



Nose Gear Leg Door - Adjustments
Figure 402

R

(9)De-energize the aircraft electrical network (Ref. 24-41-00, P. Block 301).
(10)On panel 4VU
- place landing gear control lever in Neutral position and prohibit its operation by displaying a warning notice.
(11)Shut-down hydraulic ground power cart (Ref. 29-10-00, Page Block 301).
(12)Check into wind out of wind tolerance (Ref. Fig. 402) with respect to the other door.
- FWD part leg door : 0 + 0, - 2 mm (0 + 0, - 0.078 in.).
- SIDE part leg door : Into wind, out of wind tolerances are evolutive.
- AFT part leg door : 0 + 0, + 2 mm (0 + 0, + 0.078 in.).
(13)The gap must be 6 ± 2 mm (0.236 ± 0.078 in.).
(14)Pressurize Green hydraulic system (Ref. 29-10-00, P. Block 301).
(15)Energize the aircraft electrical network (Ref. 24-41-00, P. Block 301).
- Make certain that electronics racks ventilation is correct.
(16)Carry out a gear Normal extension
- On panel 4VU, place landing gear control lever in DOWN position
(17)Install safety pin on nose gear telescopic drag strut.
(18)If flush fitting is out of tolerance, adjust as follows.
(a)For the forward part.
1 Disconnect fork fittings (13) and (20). Remove cotter pin, nuts (19), (22), shouldered bolt (14), and (18).
Note position of shim washers (16) and (17) and retain for reinstallation.
2 Fold back lockwasher tabs and loosen nuts (21) (12), then rotate fork fittings (20), (13) as required until correct flush fitting is obtained.
3 Tighten nuts (21), (12) and fold lockwasher tabs.
4 Install shouldered bolt (14) and bolt (18) install nuts when peripheral gap has been adjusted.
(b)For the aft part.
1 Fold back lockwasher tabs and loosen rod (9) nuts (15).
2 Rotate rod (9) as required until correct flush fitting is obtained.
3 Tighten and safety locknuts (15).
(19)If peripheral gap is out of tolerance adjust as follows :
(a)Adjust gap by means of shim washers (16) and (17).
(b)Make certain that width of gap is constant over whole length.
- Fold back lockwasher tabs and loosen locknut (10) then rotate eccentric bush (11) in the required direction until correct gap is obtained. Tighten and safety locknut (10).
(20)On LH side, install nut (22).
(21)On RH side, install and safety nut (19) with cotter pin.
WARNING : MAKE CERTAIN THAT DOOR TRAVEL RANGES ARE CLEAR.
(22)Remove safety pin from nose gear telescopic drag strut.
(23)Make certain that the hydraulic ground power cart delivery and pressure are set at minimum.
(24)On panel 4VU
- place landing gear control lever in UP position.
(25)Adjust the hydraulic ground power cart delivery. Retract gears and close doors as slowly as possible.

(26)On panel 4VU
- place landing gear control lever in Neutral position and prohibit its operation by displaying a warning notice.

(27)Shut down hydraulic ground power cart (Ref. 29-10-00, P. Block 301).

(28)De-energize the aircraft electrical network (Ref. 24-41-00, P. Block 301).

(29)Check that peripheral gap and flush fitting have been correctly adjusted. Make certain that main door stop shims bear correctly on leg door mounting fitting rollers.
WARNING : MAKE CERTAIN THAT DOOR TRAVEL RANGES ARE CLEAR

(30)Energize the aircraft electrical network (Ref. 24-41-00, P. Block 301). Make certain that electronics racks ventilation is correct.

(31)Pressurize Green hydraulic system (Ref. 29-10-00, P. Block 301).

(32)On panel 4VU
- place landing gear control lever in **DOWN** position.

(33)Make certain that nose gear is downlocked and install safety pin on nose gear telescopic drag strut. Make certain that main gear safety pins are installed.

(34)Depressurize Green hydraulic system (Ref. 29-10-00, P. Block 301).

(35)De-energize the aircraft electrical network (Ref. 24-41-00, P. Block 301).

(36)Complete door adjustments if necessary (flush fitting and peripheral gap).

(37)Remove safety clips and tags and close circuit breaker 4GE.

E. Test

(1)Carry out landing gear Normal extension and retraction functional test (Ref. 32-31-00, P. Block 501).

F. Close-Up

(1)Make certain that working area is clean and clear of tools and miscellaneous items of equipment.
WARNING : MAKE CERTAIN THAT AREA UNDER THE AIRCRAFT IS CLEAR.

(2)Lower the aircraft onto its wheels (Ref. 07-11-00, P. Block 1).
WARNING : MAKE CERTAIN THAT DOOR TRAVEL RANGES ARE CLEAR.

(3)Close landing gear doors (Ref. 32-12-11, P. Block 301).

(4)Disconnect hydraulic ground power cart (Ref. 29-10-00, P. Block 301).

(5)Remove warning notices.

(6)Close access doors, remove access platform and safety barriers.

(7)Remove all ground handling and maintenance equipment, standard and special tools together with ground power and replenishment equipment, all access equipment and miscellaneous items.

CONTROL HANDLE - NLG DOOR GROUND OPENING - REMOVAL/INSTALLATION

WARNING : CHECK THAT LANDING GEAR GROUND SAFETIES INCLUDING WHEEL CHOCKS ARE IN POSITION.
BEFORE APPLYING OR RELIEVING HYDRAULIC SYSTEM PRESSURE, MAKE CERTAIN THAT TRAVEL RANGES OF THE CONTROL SURFACES ARE CLEAR.
BEFORE PRESSURIZING HYDRAULIC SYSTEMS, CHECK THAT ALL CONTROLS ARE SET TO CORRESPOND WITH THE ACTUAL POSITION OF THE SERVICES THEY OPERATE.
BEFORE POWER IS SUPPLIED TO THE AIRCRAFT, MAKE CERTAIN THAT ELECTRICAL CIRCUITS UPON WHICH WORK IS IN PROGRESS ARE ISOLATED.
BEFORE PRESSURIZING HYDRAULIC SYSTEMS, MAKE CERTAIN THAT HYDRAULIC SYSTEM UNDER MAINTENANCE HAS BEEN ISOLATED.

1. Equipment and Materials

ITEM	DESIGNATION
A.	Access Platform 2 m (6 ft 7 in.)
B.	Warning Notices
C.	Safety Barriers
D. Material No. 11-002	Cleaning Agents (Ref. 20-31-00)
Referenced Procedures	
- 24-41-00, P. Block 301	AC External Power Control
- 29-10-00, P. Block 301	Main Hydraulic Power-Pressurization/Depressurization
- 29-14-00, P. Block 301	Hydraulic Reservoir Pressurization/Depressurization
- 32-12-11, P. Block 301	Main Gear Main Door-(Ground Door(s) Opening)
- 32-22-11, P. Block 301	Nose Gear Main Door-(Ground Door(s) Opening)

2. Procedure

A. Job set-up
(1) On the upper center instrument panel 4VU :
- Make certain that landing gear control lever is in **DOWN** position and prohibit its operation by displaying a warning notice.

(2) Between First Officer's and Third Occupant's seats :
- Make certain that landing gear free fall extension control handle is in Normal position and prohibit its operation by displaying a warning notice.

(3) Position access platform.
(4) Position safety barriers prohibiting access to gear door travel ranges.
WARNING : MAKE CERTAIN THAT DOOR TRAVEL RANGES ARE CLEAR.
(5) Open main gear doors (Ref. 32-12-11, P. Block 301)
WARNING : WHEN DOORS ARE OPEN MAKE CERTAIN THAT SAFETY COLLARS ARE POSITIONED ON DOOR ACTUATING CYLINDERS.
(6) Depressurize Green hydraulic reservoir (Ref. 29-14-00, P. Block 301) and prohibit its pressurization by displaying a warning notice :
- On APU section of overhead panel 429VU, to prohibit APU starting
- On reservoir pressurization connector.

(7)Depressurize Green hydraulic system (Ref. 29-10-00, P. Block 301) and prohibit its pressurization by displaying a warning notice :
- On Green hydraulic system ground connectors
- On HYD PWR panel 427VU, to prohibit operation of Green electric pumps (ELEC PUMPS pushbutton switch)

B. Removal (Ref. Fig. 401)

WARNING : SPRING ROD IS SPRING-LOADED FORWARD. INJURY MAY OCCUR IF CARE IS NOT TAKEN DURING REMOVAL.

(1)Remove and discard cotter-pin (20). Remove nut (21), washer (19) and bolt (17).
(2)Disconnect control rod (18) from bellcrank (9).
(3)Remove taper-pins (10) from pin of handle assembly (1).
(4)Turn bellcrank (9) from handle assembly (1) to release spring (13).
(5)Remove handle assembly (1) and washers (2), (3), (7) and (8) from bellcrank (9) and support (4).
(6)Remove spring (15) from rod (14).
(7)Remove and discard cotter pin (11). Remove nut (12), washer (13) and bolt (16).
(8)Disconnect rod (14) from bellcrank (9).
(9)Cut lockwire and remove nut (22) and setscrew (23).
(10)Remove cotter-pin (29), nut (28) and washer (27).
(11)Remove bolt (24), spring stop (25) and spacer (26).
(12)Remove bolts (6) and washers (5).
(13)Remove support (4) from door.

C. Preparation of replacement component

(1)Remove outer protective coverings of replacement handle.
(2)Clean with Material No. 11-002 and dry it with filtered compressed air.
(3)Make certain that parts for installation are in correct condition (replace any damaged part).

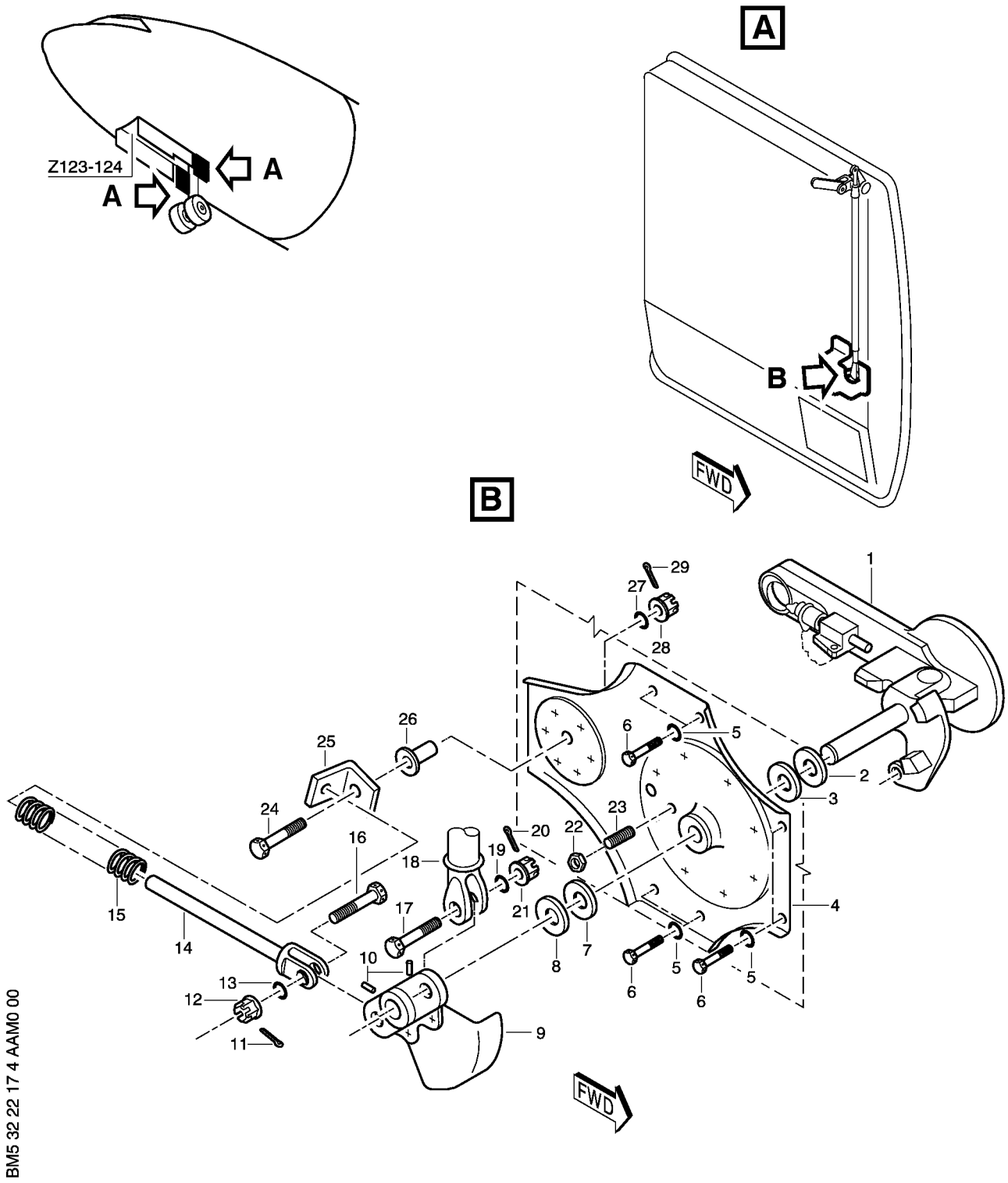
D. Installation (Ref. Fig. 401)

(1)Put support (4) in position on door.
(2)Install bolts (6) and washers (5).
(3)Tighten bolts (6).
(4)Install spacer (26) in support (4).
(5)Put spring stop (25) in position on support (4).
(6)Install bolt (24).
(7)Install washer (27) and nut (28).
(8)Insert setscrew (23) into support (4), install and tighten nut (22) but do not safety with lockwire at this time.
(9)Position washers (2) and (3) on pin of handle assembly (1).
(10)Install handle assembly (1) onto support (4).
(11)Position washers (7) and (8) on pin of handle assembly (1).
(12)Install rod (14) on bellcrank (9) with bolt (16), washer (13) and nut (12).
(13)Tighten nut (12) and safety with new cotter pin (11).
(14)Install bellcrank (9) on pin of handle assembly (1).
(15)Position spring (15) onto rod (14).

(16)Install spring-rod assembly through spring stop of support (4).
(17)Align holes of bellcranck (9) with holes of pin of handle assembly (1) to install taper-pins (10).
(18)Install new taper-pins (10) and safety them.
(19)Turn spring stop (25) until it is correctly aligned with spring-rod assembly.
(20)Tighten nut (28) and safety with new cotter pin (29).
(21)Install control rod (18) on bellcrank (9) with bolt (17), washer (19) and nut (21).
(22)Tighten nut (21) and safety with new cotter pin (20).
(23)Turn setscrew (23) into or out of support (4) to adjust flush fitting between handle assembly (1) and door exterior skin.
(24)Tighten nut (23) and safety with lockwire.

E. Test
(1)Do a full **NLG DOOR CLOSE/DOOR OPEN** cycle on the ground (Ref. 32-22-11, P. Block 301).

F. Close-up
(1)Make certain that working area is clean and clear of tools and miscellaneous items of equipment.
WARNING : MAKE CERTAIN THAT DOOR TRAVEL RANGES ARE CLEAR.
(2)Close landing gear doors (Ref. 32-12-11, P. Block 301).
(3)Remove warning notices.
(4)Close access doors, remove access platform and safety barriers.
(5)Remove all ground handling and maintenance equipment, standard and special tools together with ground power and replenishment equipment, all access equipment and miscellaneous items.



NLG Ground-Opening Handle
Figure 401

1. General

A. Normal Extension and Retraction - 32-31
(Ref. Fig. 001)

(1) Control

Landing gear Normal extension and retraction is controlled through a 3-latched position lever located on the First Officer's side of the center instrument panel. This lever controls the landing gear selector valve located on the hydraulics compartment roof.
Power is supplied by the Green hydraulic system.
The successive door opening, gear extension or retraction and door closing sequences are performed independently for each gear via hydro-mechanical sequence valves.
- door sequence valves controlled by the gear
- gear sequence valves controlled by the doors.

(2) Sequence principle

The landing gear selector valve and each door sequence valve are essentially two series-connected 3-position switches.
- The selector valve is controlled by the position of the landing gear control lever : UP - Neutral - DOWN
- The sequence valves are controlled by the position of the gear : Uplocked - Moving - Downlocked

With the door fully open, the gear sequence valve opens and supplies the appropriate side (extension or retraction) of the associated gear actuating cylinder.
This feature is such that :
- As long as the gear is not in the selected position, the gear door actuating cylinder and uplock are pressurized open.
- The gear door in fully open position allows gear extension or retraction as appropriate : lock release - movement - uplock or downlock.
- As soon as the gear uplocks or downlocks, the gear doors close, uplock and remain pressurized closed.

With the landing gear control lever in Neutral position (normal in-flight, gear retracted position) all actuating cylinder chambers are connected to Green reservoir return.

(3) Landing gear retraction safeties

An anti-retraction latch (interlock) in the landing gear control lever switch unit inhibits selection of the lever to UP position as long as the landing gear is not in flight configuration.
- Nose gear shock absorber extended (wheels centered by cam)
- Main gear shock absorbers extended
- Bogie beams aligned (10° pitch-down approx.).

The detection system is duplicated for safety reasons and monitored by the ECAM system which advises crew to select other system, via the POSITION DET switch, or that landing gear should not be retracted.

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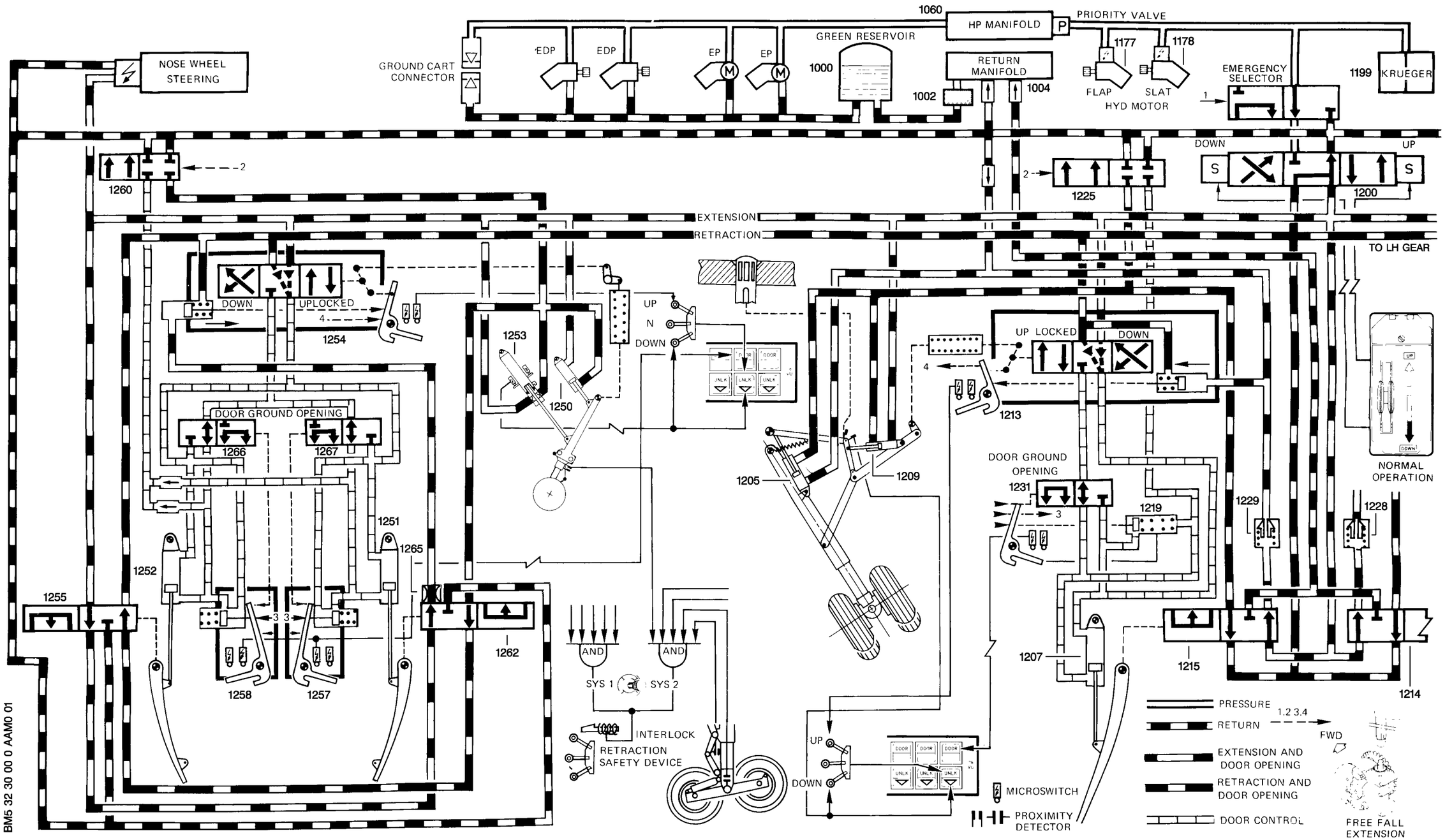

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Extension And Retraction - Schematic
Figure 001

R

B. Landing gear Free Fall extension - 32-33

In the event of Normal system failure, the landing gear can be extended mechanically from the flight compartment by means of a crank handle.
Rotation of the handle controls the following sequence of events :

Event	Number of turns
(1)Shut off of high pressure supply	7
(2)Connection of gear door actuating cylinder retraction chambers to reservoir return	14
(3)MLG door uplock release	15 to 16
(4)NLG door uplock release	18.25 to 18,5
(5)MLG uplock release	18. to 18,5
(6)NLG uplock release	18 to 19
(7)Mechanical Stop	20.4

The landing gear extends under free fall action. Downlocking is assisted by locking springs for the main gear and aerodynamic forces for the nose gear. The gear doors remain open.
A procedure is provided for restoring the landing gear to normal operating condition to enable gear retraction after a Free Fall extension during training flights.

1. Landing Gear Normal Control

WARNING : CHECK THAT THE LANDING GEAR GROUND SAFETIES INCLUDING WHEEL CHOCKS ARE IN POSITION

A. Reason for the Job

Check the electrical circuits associated with landing gear Normal control.

B. Equipment and Materials

ITEM	DESIGNATION
(1)	Multimeter
(2)	Warning Notice
Referenced Procedures	
- 32-00-00, P. Block 501	General
- 32-31-11, P. Block 401	Landing Gear Normal Control Microswitch Unit (2GA)

C. Procedure

(1)Job set-up

(a)Make certain that drag and brace strut safety pins are installed
- on main gear lock link assemblies
- on nose gear telescopic drag strut.

(b)Open, safety and tag the following circuit breakers :

	PANEL	SERVICE	IDENT.	LOCATION
	22VU	LDG/EXTEND/CTL	1GA	201/J28
	133VU	HYDRAULIC-L/G SYS 1 RELAYS AND RETRACT CTL	2GB	332/U51
	133VU	HYDRAULIC-BRAKES SYSTEM CTL UNIT/CTL WARN	5GG	333/T56
	21VU	AIDS/PMUX	12TU	105/E05
	21VU	AIDS/DFDAU	55TU	105/E03
	21VU	ECAM/SDRC PWR SUPPLY	6WV	109/A05
	133VU	L/G PROX DET/& RELAYS SYS1/GEAR ON &/CTR PNL/POS IND	3GB	332/U53
R	133VU	L/G PROX DET/& RELAYS SYS2/GEAR DOWN &/OVHD PNL/POS IND	83GB	333/V51

(c)Remove screws securing microswitch unit 2GA.

(d)Withdraw microswitch unit 2GA from panel 4VU to gain access to electrical connector.

(e)Disconnect electrical connector and remove microswitch unit 2GA.

(2)Check

- place landing gear control lever in Neutral position

(a)On microswitch unit 2GA electrical connector
- check that there is no continuity between terminals X and D on receptacle

C and A on receptacle
f and h on receptacle
j and e on receptacle
C and A on plug 2GAA
j and e on plug 2GAA

(b)Connect electrical connector to microswitch unit 2GA.
(c)Position microswitch unit 2GA in panel 4VU and secure with screws.
(d)On panel 4VU, place landing gear control lever in down position.

(3)Test
After check, perform tests (Ref. 32-31-11, P. Block 401, Para D).

(4)Close-up
Make certain that working area is clean and clear of tools and miscellaneous items of equipment.

R 2. Detailed Inspection of Control Cables

(Ref. Fig. 601)

A. Reason for the Job
Check of nose and main landing gear Free Fall control cables.

B. Equipment and Materials

ITEM	DESIGNATION
Referenced Procedures	
- 29-10-00, P. Block 301	Main Hydraulic Power - Pressurization/ Depressurization
- 29-14-00, P. Block 301	Hydraulic Reservoir Pressurizing System
- 32-12-11, P. Block 301	Main Gear Main Door - (Ground Door(s) Opening)
- 32-22-11, P. Block 301	Nose Gear Main Door - (Ground Door(s) Opening)
- 32-33-26, P. Block 401	Cables - Free Fall Extension

C. Procedure

(1)Job set-up

(a)On panel 4VU :
- make certain that landing gear control lever is in DOWN position and prohibit its operation by displaying a warning notice.

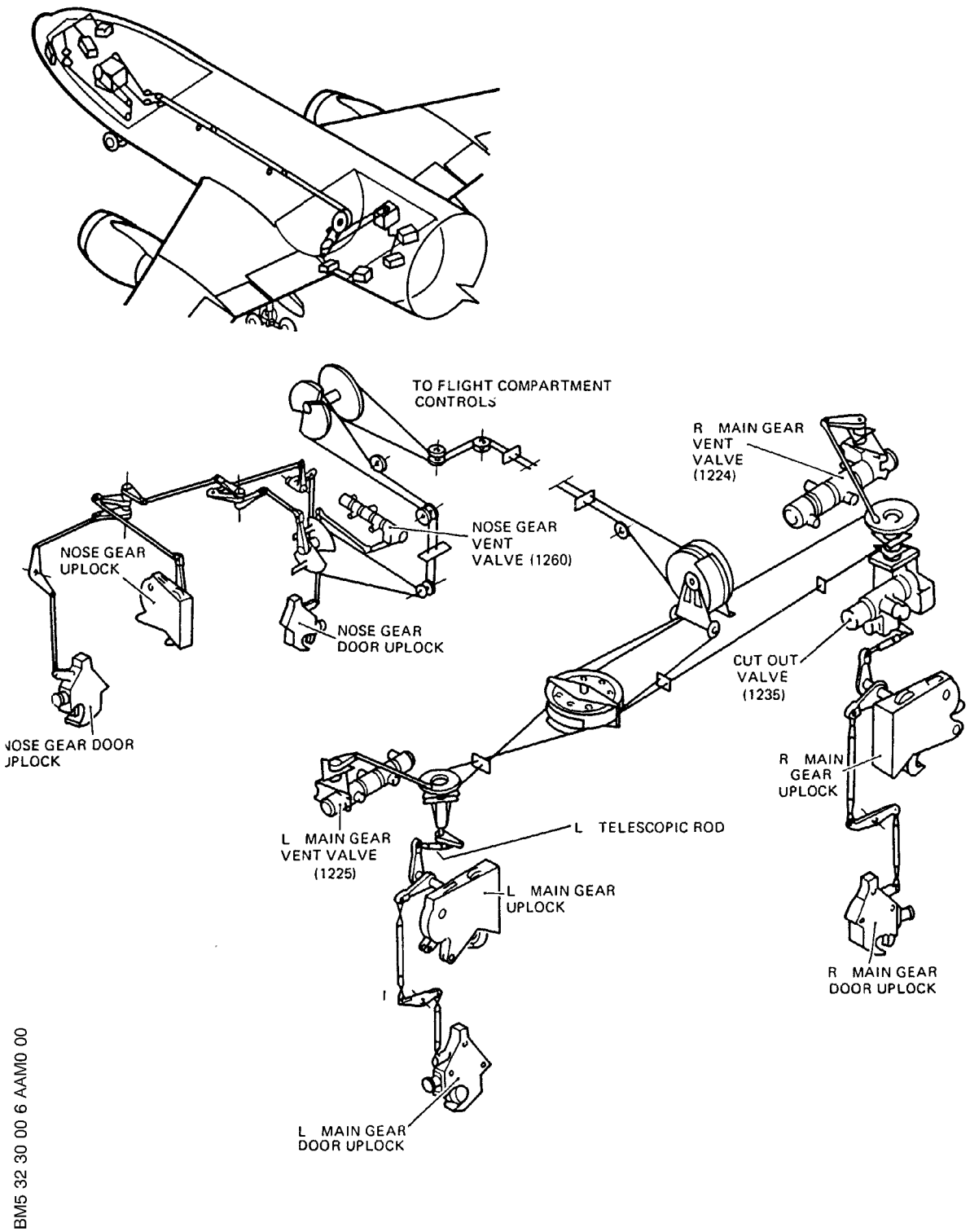
(b)Between First Officer's and Third Occupant's seats :
- make certain that landing gear Free Fall extension control handle is in Normal position.

(c)Position access platform.

(d)Position safety barriers prohibiting access to gear door travel ranges.
WARNING : MAKE CERTAIN THAT DOOR TRAVEL RANGES ARE CLEAR.

(e)Open main and nose gear doors (Ref. 32-12-11, P. Block 301 and Ref. 32-22-11, P. Block 301).
WARNING : WHEN DOORS ARE OPEN, MAKE CERTAIN THAT SAFETY COLLARS ARE POSITIONED ON DOOR ACTUATING CYLINDERS.

(f)Depressurize Green hydraulic reservoir (Ref. 29-14-00, P. Block 301) and prohibit its pressurization by displaying a warning notice :
- on panel 429VU to prohibit APU starting,


TO FLIGHT COMPARTMENT CONTROLS
R MAIN GEAR VENT VALVE (1224)
NOSE GEAR UPLOCK
NOSE GEAR VENT VALVE (1260)
NOSE GEAR DOOR UPLOCK
NOSE GEAR DOOR UPLOCK
CUT OUT VALVE (1235)
R MAIN GEAR UPLOCK
L MAIN GEAR VENT VALVE (1225)
L TELESCOPIC ROD
L MAIN GEAR UPLOCK
R MAIN GEAR DOOR UPLOCK
L MAIN GEAR DOOR UPLOCK
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Free Fall Extension - Operating Mechanism
Figure 601

R

- on reservoir pressurization connectors.

(g)Depressurize Green hydraulic system (ref. 29-10-00, P. Block 301) and prohibit its pressurization by displaying a warning notice :
- on Green hydraulic system ground connectors,
- on panel 427VU to prohibit operation of Green electric pumps (ELEC PUMPS pushbutton switch).

(h)In fuselage, open door 811.
Open door 132AZ.

(j)In zone 132, remove ceiling panels.

(k)In zone 241, remove floor panels LF, NF, CG, QF and RF.

(l)In zone 242, remove floor panels AG, BG, CG, QF and RF.

R (2)Do a detailed inspection of main landing gear Free Fall control cables.

(a)Make certain that control cables do not have kinks, broken wires or too much wear.

R (3)In zones 121, 122 and 124, do a detailed inspection of nose landing gear Free Fall control cables.

(a)Make certain that control cables do not have kinks, broken wires or too much wear.

(4)If there is damage, replace related control cable (Ref. 32-33-26, P. Block 401).

(5)Close-up

(a)Make certain that working area is clean and clear of tools and miscellaneous items of equipment.

(b)In zone 132, install ceiling panels.
In zones 241 and 242, install floor panels.

(c)Close door 132AZ.
In fuselage, close door 811.

(d)Pressurize hydraulic reservoirs (Ref. 29-14-00, P. Block 301).
WARNING : MAKE CERTAIN THAT DOOR TRAVEL RANGES ARE CLEAR.

(e)Close landing gear doors (Ref. 32-12-11, P. Block 301 and Ref. 32-22-11, P. Block 301).

(f)Remove warning notices.

(g)Close access doors, remove access platform and safety barriers.

(h)Remove all ground handling and maintenance equipment, standard and special tools, together with ground power and replenishing equipment, all access equipment and miscellaneous items.

(6)Pulleys
(Ref. 20-29-14, P. Block 1).

NORMAL EXTENSION AND RETRACTION - DESCRIPTION AND OPERATION

1. General

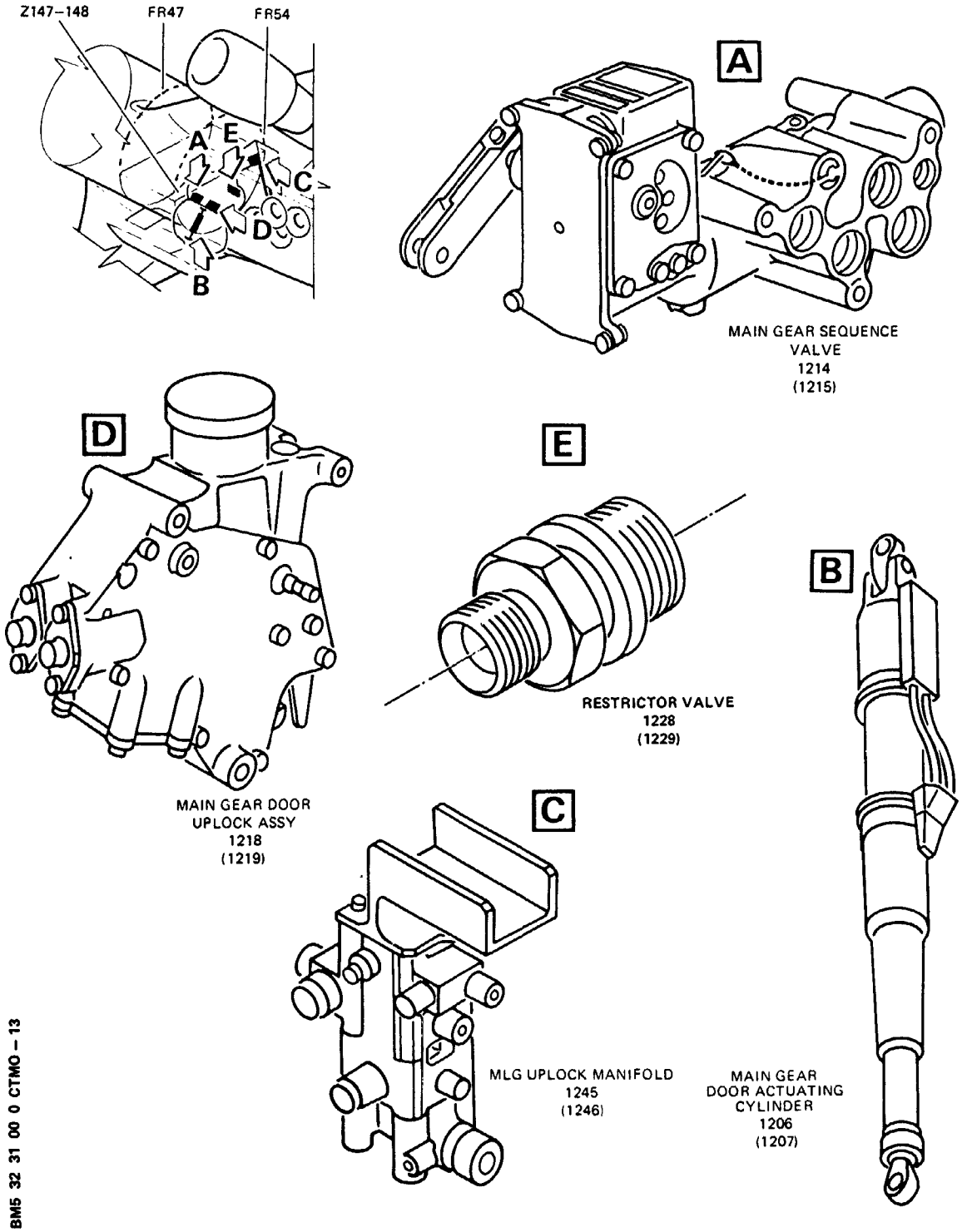
This chapter essentially covers the individual description and operation of the various components in the order in which they operate within the system. Indicating and relays associated with the landing gear are covered in chapters 32-61 and 32-62.

2. Component Location

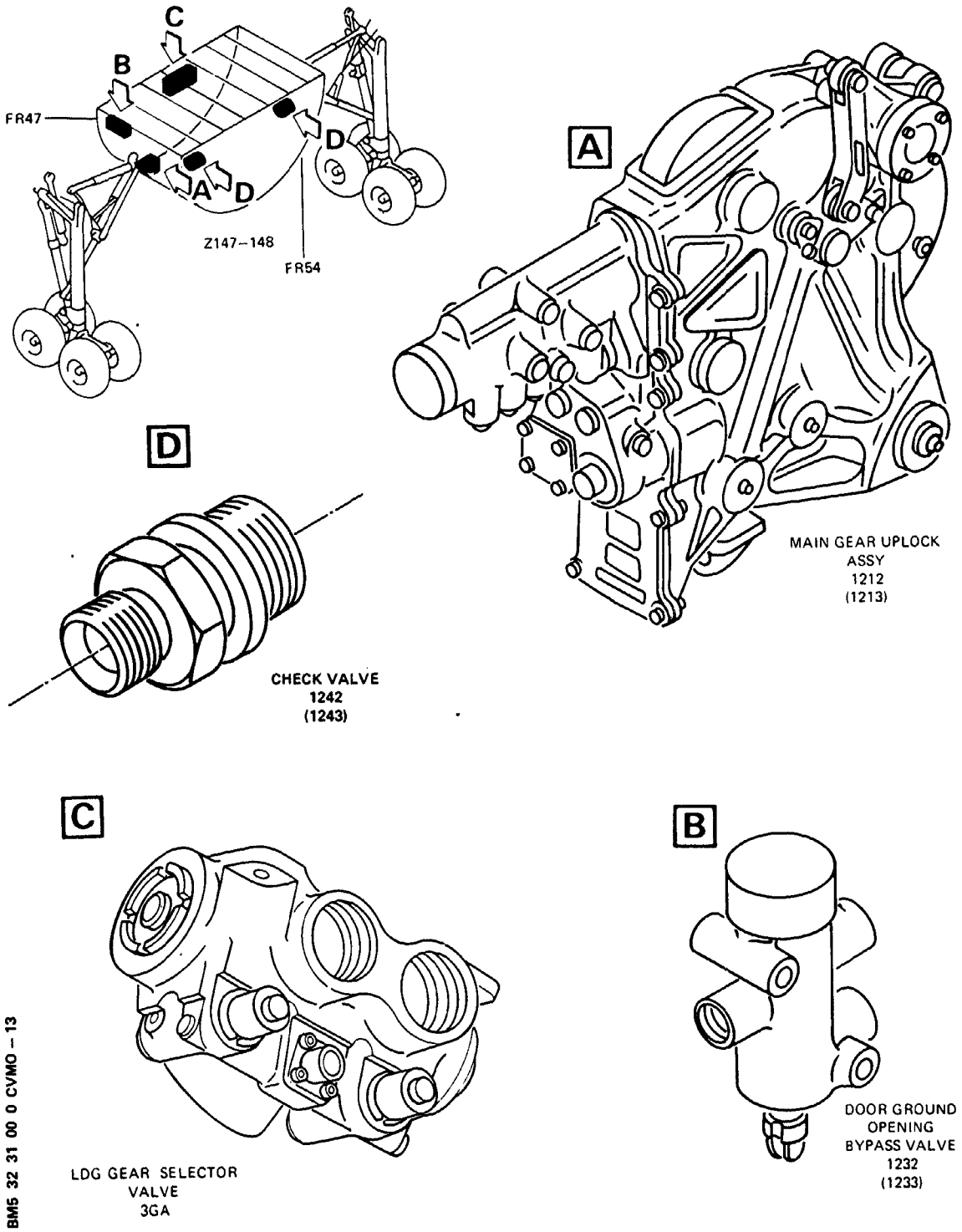
(Ref. Fig. 001, 002, 003)
(Ref. Fig. 004, 005)
(Ref. Fig. 006)
(Ref. Fig. 007)

	FIN	FUNCTIONAL DESIGNATION	PANEL	ZONE	ACCESS DOOR	ATA REF.
	1204	ACTUATING CYL-MLG, L		731		32-31-46
	1205	ACTUATING CYL-MLG, R		741		32-31-46
	1206	ACTUATING CYL-MLG DOOR, L		147		32-31-35
	1207	ACTUATING CYL-MLG DOOR, R		148		32-31-35
	1208	ACTUATING CYL-MLG BRACE STRUT, L		731		32-31-55
	1209	ACTUATING CYL-MLG BRACE STRUT, R		741		32-31-55
	1212	UPLOCK ASSY-MLG, L		147		32-31-44
	1213	UPLOCK ASSY-MLG, R		148		32-31-44
	1214	SEQUENCE VALVE-MLG, L		147		32-31-37
	1215	SEQUENCE VALVE-MLG, R		148		32-31-37
	1218	UPLOCK ASSY-MLG DOOR, L		147		32-31-33
	1219	UPLOCK ASSY-MLG DOOR, R		148		32-31-33
R	1228	RESTRICTOR VALVE-MLG, L		147		32-31-57
R	1229	RESTRICTOR VALVE-MLG, R		147		32-31-57
	1232	BYPASS VALVE-MLG DOOR GND OPENING, L		147		32-31-13
	1233	BYPASS VALVE-MLG DOOR GND OPENING, R		148		32-31-13
R	1240	RESTRICTOR VALVE-MLG DOOR, L		148		32-31-58
R	1241	RESTRICTOR VALVE-MLG DOOR, R		148		32-31-58
	1242	CHECK VALVE-MLG FREE FALL, L		147		
	1243	CHECK VALVE-MLG FREE FALL, R		148		
	1245	MANIFOLD-MAIN GEAR, R		148		
	1246	MANIFOLD-MAIN GEAR, L		147		
	1250	ACTUATING CYL-NLG		711		32-31-22
	1251	ACTUATING CYL-NLG DOOR, R		124	714	32-31-16
	1252	ACTUATING CYL-NLG DOOR, L		123	713	32-31-16
	1253	STRUT ASSY-NLG TELESCOPIC		711		32-31-24
	1254	UPLOCK ASSY-NLG		123	713	32-31-21
	1255	SEQUENCE VALVE-NLG, R		123	713	32-31-18
	1257	UPLOCK ASSY-NLG DOOR, R		124	714	32-31-14
	1258	UPLOCK ASSY-NLG DOOR, L		123	713	32-31-14
	1262	SEQUENCE VALVE-NLG, L		124	714	32-31-18
	1266	BYPASS VALVE-NLG DOOR GND OPENING, L		123		32-31-15
	1267	BYPASS VALVE-NLG DOOR GND OPENING, R		124		32-31-15
	2GA	SWITCH UNIT-L/G CTL LEVER	4VU	210		32-31-11
	3GA	SELECTOR VALVE-LDG GEAR		147		32-31-12

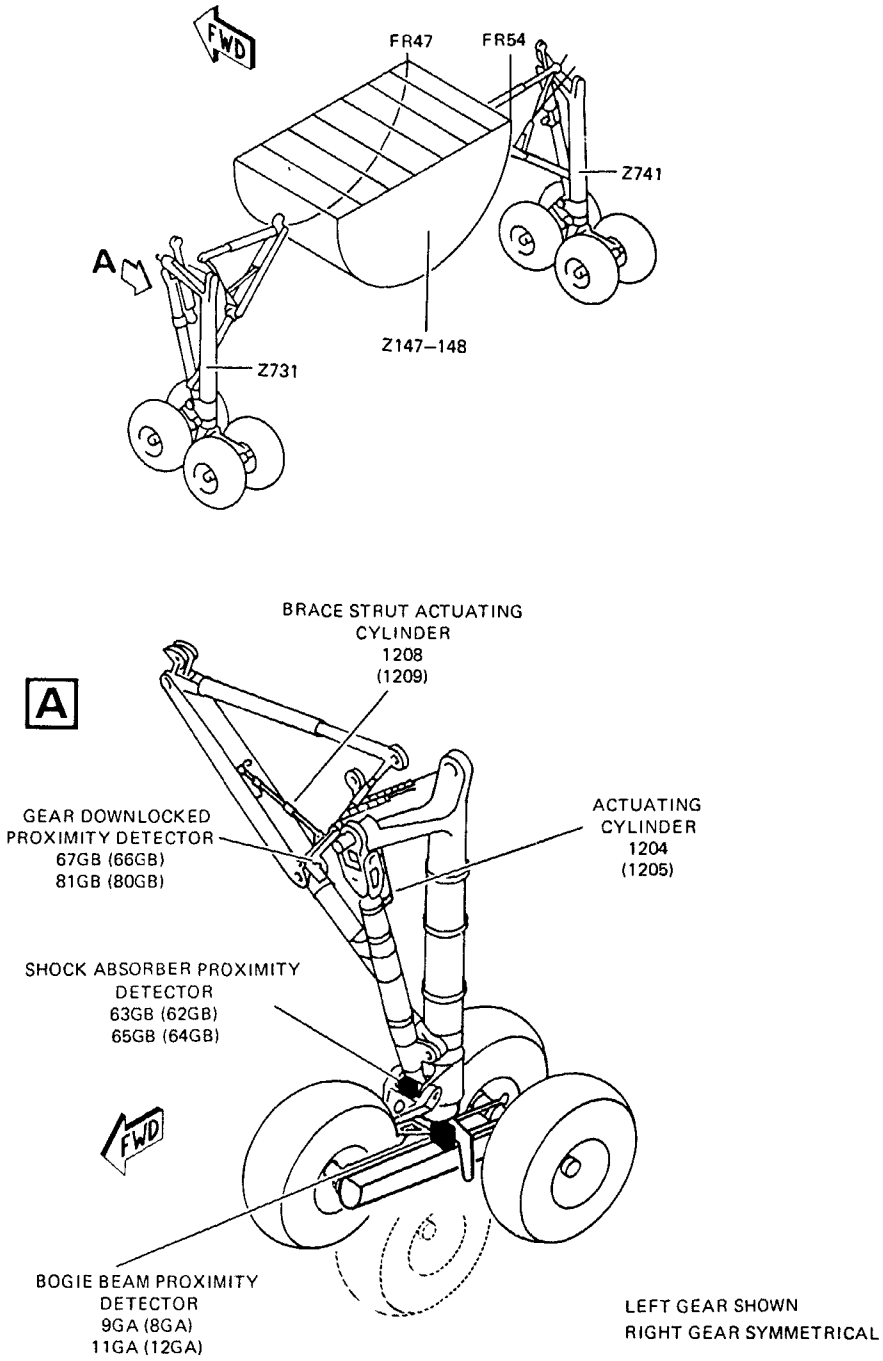
FIN	FUNCTIONAL DESIGNATION	PANEL	ZONE	ACCESS DOOR	ATA REF.
8GA	PROX DET-BOGIE BEAM, SYS1 R		741		32-00-00
9GA	PROX DET-BOGIE BEAM, SYS1 L		731		32-00-00
10GA	SW-LDG GEAR/POSITION DET/SYS1 SYS2	4VU	210		
11GA	PROX DET-BOGIE BEAM, SYS2, L		731		32-00-00
12GA	PROX DET-BOGIE BEAM, SYS2 R		741		32-00-00
	ANNUNCIATOR PNL-L/G AND DOOR	4VU	211		
54GB	PROCU-PROX DET	93VU	122		
55GB	PROX DET-NLG SH ABS, SYS1		711		32-00-00
62GB	PROX DET-MLG SH ABS, SYS2 R		741		32-00-00
63GB	PROX DET-MLG SH ABS, SYS2 L		731		32-00-00
64GB	PROX DET-MLG SH ABS, SYS1 R		741		32-00-00
65GB	PROX DET-MLG SH ABS, SYS1 L		731		32-00-00
66GB	PROX DET-MLG DNLKD, SYS1 R		741		32-00-00
67GB	PROX DET-MLG DNLKD, SYS1 L		731		32-00-00
	ANNUNCIATOR PNL-L/G AND DOOR	76VU	211		
79GB	MSW-NLG DNLKD, SYS2		711		32-00-00
80GB	PROX DET-MLG DNLKD, SYS2 R		741		32-00-00
81GB	PROX DET-MLG DNLKD, SYS2 L		731		32-00-00
82GB	PROX DET-NLG SH ABS, SYS2		711		32-00-00



MLG Extension and Retraction Components Zones 147-148
Figure 001



MLG Extension and Retraction Components Zones 147-148
Figure 002



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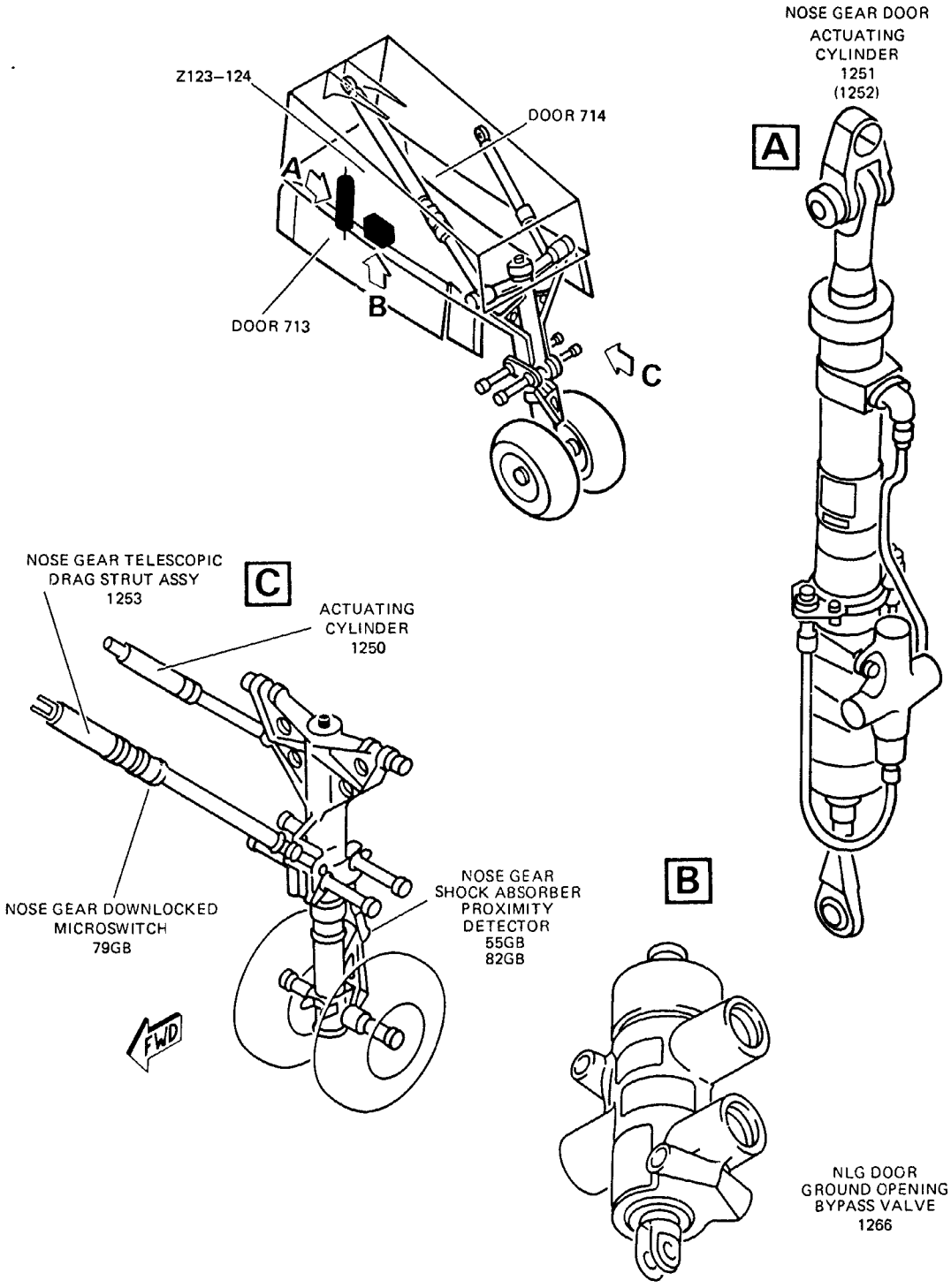
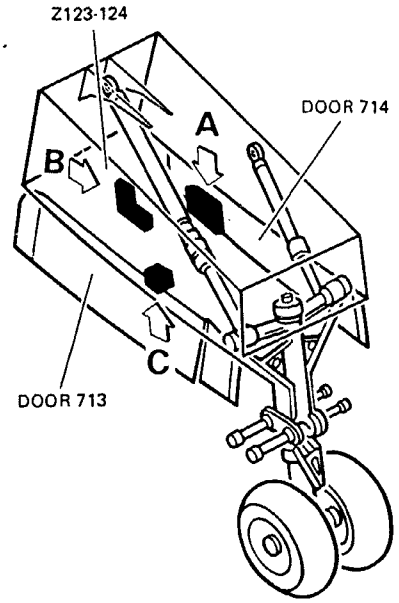
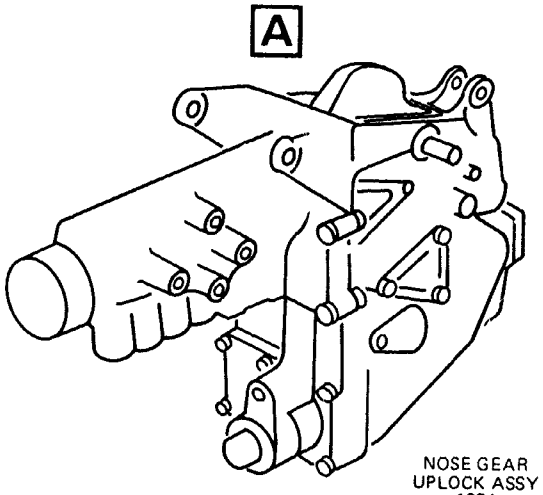
MLG Extension and Retraction Components Zones 731-741
Figure 003



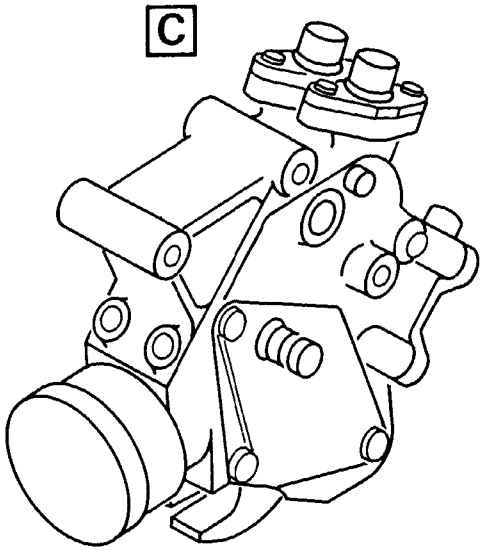
BM5 32 31 00 0 CWMO – 08

NLG Extension and Retraction Components
Figure 004

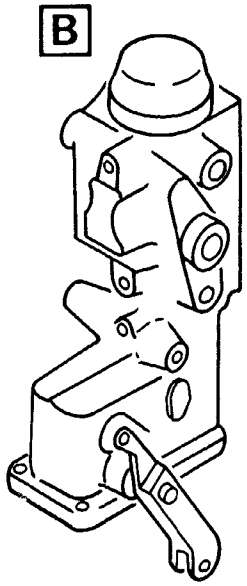




NOSE GEAR
UPLOCK ASSY
1254



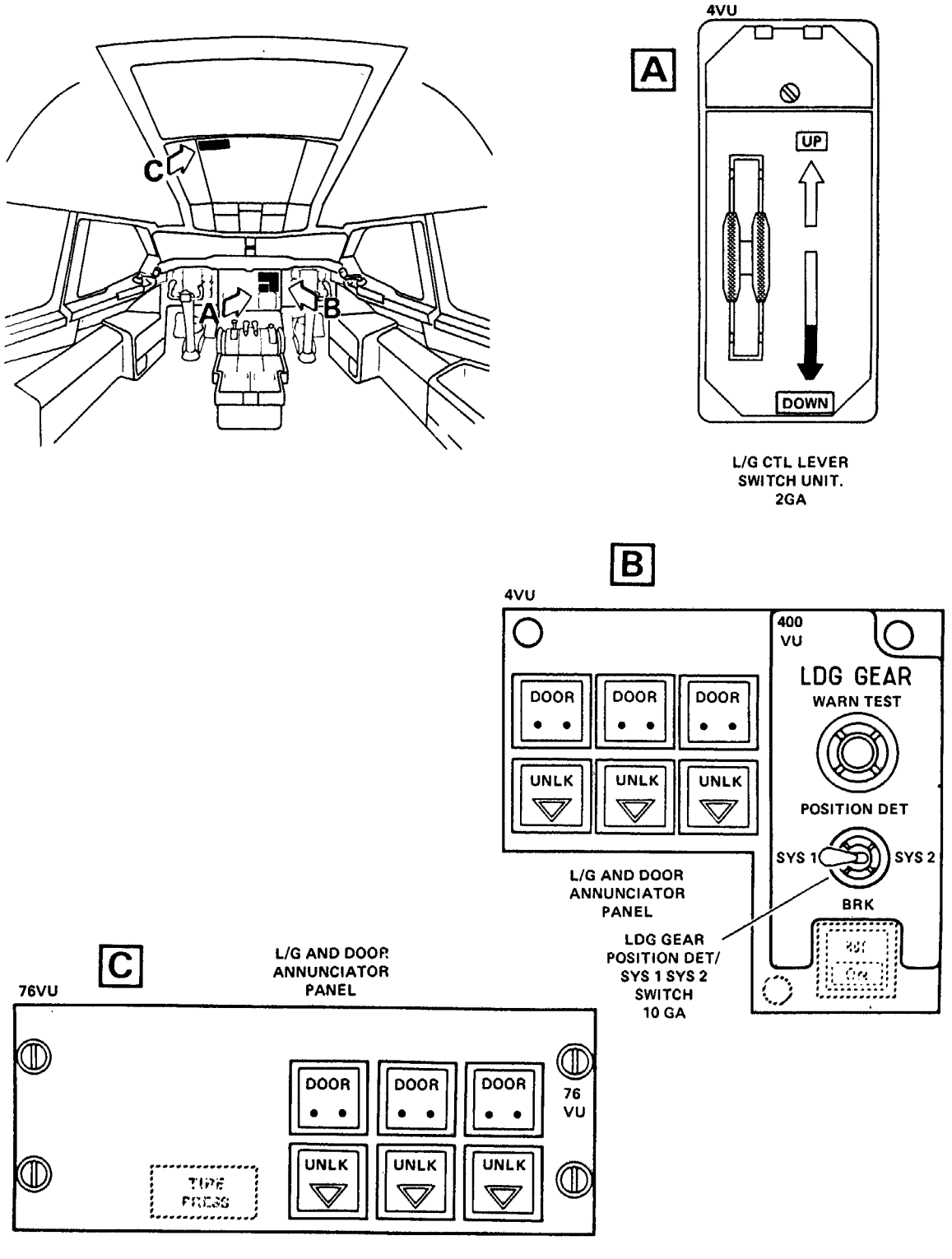
NOSE GEAR DOOR
UPLOCK ASSY
1257
(1258)



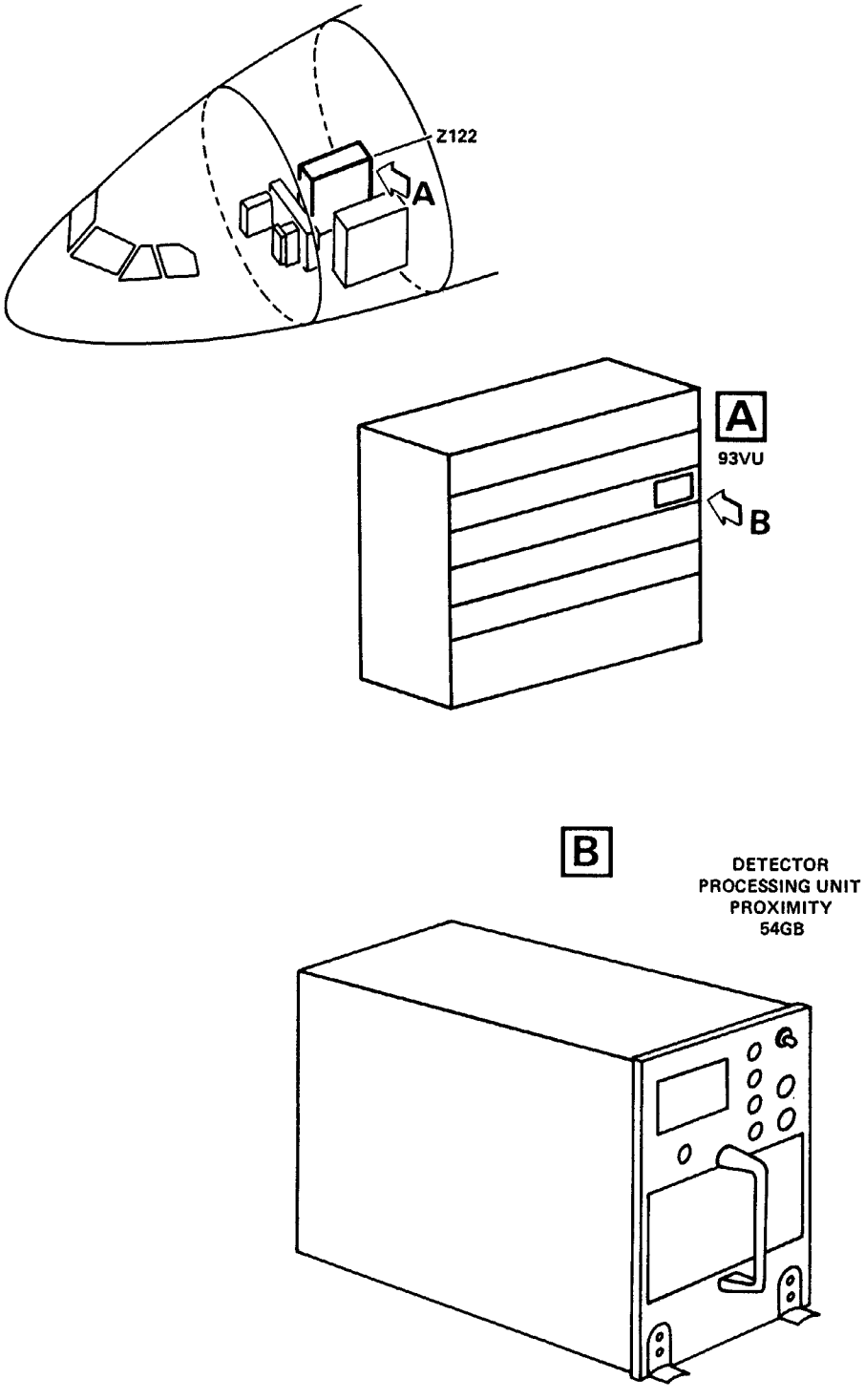
NOSE GEAR
SEQUENCE VALVE
1255
(1262)

BM5 32 31 00 0 CXMO – 08

NLG Extension and Retraction Components
Figure 005



Landing Gear Control and Indicating Components Flight Compartment
Figure 006



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Proximity Detector Processing Unit 54GB
Figure 007

3. Component Description

A. Landing Gear Control Lever Switch Unit 2GA

(1) General

(Ref. Fig. 008)

This unit is located on the center instrument panel. The face is equipped with the landing gear control lever and 2 arrows indicating **UP** and **DOWN**.

(2) Description

(a) Landing gear extension and retraction are performed by pulling then raising or lowering the control lever.

The lever can be placed in 3 positions : Neutral - **DOWN** - **UP**.

- Gear retraction is performed by moving the lever from Neutral to **UP** position
- Gear extension is performed by moving the lever from Neutral to **DOWN** position

(b) A unidirectional latch prevents the lever from being moved directly from the **UP** to **DOWN** position. Positioning from the **DOWN** position is only possible after engagement of the lever in the locking notch at the Neutral position

(c) An anti-retraction latch (interlock) incorporated in the unit pervents the control lever from being moved from the Neutral to **UP** position when the aircraft is on the ground. The anti-retraction latch is automatically released by energization of a solenoid when the aircraft is in flight. For maintenance purposes on the ground, when checking the electrical circuits, the interlock can be overriden by pressing a pushbutton provided during control lever operation.

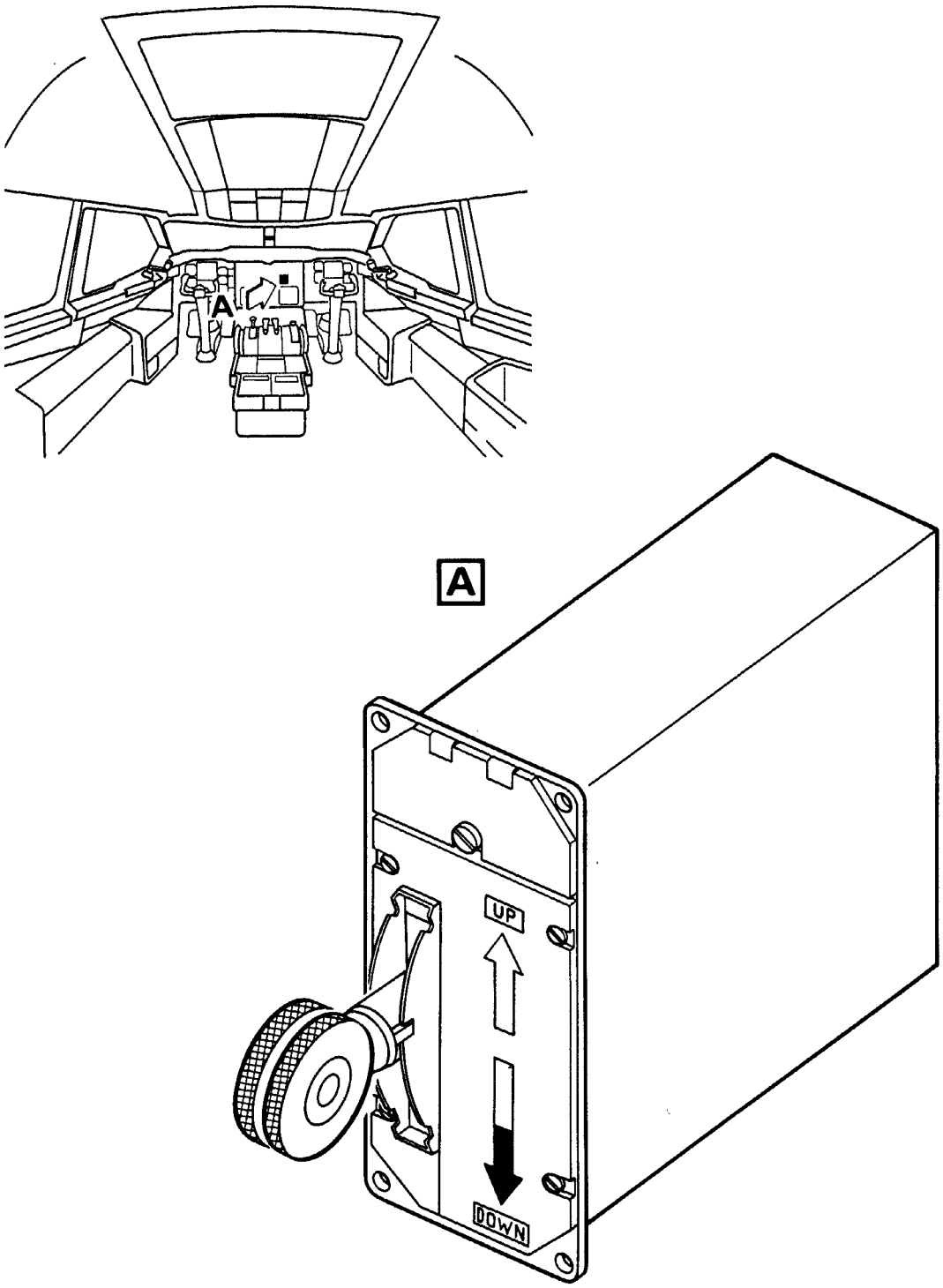
The pushbutton is located under a flap secured by a screw safetied with sealant and is reserved for the use of maintenance personnel only.

(d) The control lever operates a series of switches which perform the electrical functions.

(e) Inscription lighting

The **UP** and **DOWN** inscriptions and the outline of the two arrows on the face of the unit are illuminated with integral white lighting.

The lower part of the **DOWN** arrow comes on red when the aircraft in-flight configuration requires gear extension.



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Landing Gear Control Lever Switch Unit
Figure 008

(3)Characteristics

Drawing	224 TS 05Y
Weight	0.890 Kg
Electrical connection	Connector NAS 1599 41 pins polarization N
Dielectric strength, isolation resistor	To specification AIR 0520
Electrical contacts (nominal rating)	I : 5A under 28V resistive circuit I : 3A under 28V self inductance circuit L/R = 5/1000
Protective circuit breaker rating	5A
Anti-retraction system	
Operating mode	Permanent
Energization voltage	17 to 33VDC
Consumption	0.5A under 28.5V

B. Landing Gear Selector Valve 3GA

(1)General

(a)The selector valve is located on the hydraulics compartment roof and serves to distribute Green hydraulic pressure to gear extension or retraction hydraulic lines or to connect the 2 lines to reservoir return.
(Ref. Fig. 009)

(b)The selector valve comprises a control stage (electro-hydraulic stage) and a power stage (hydraulic stage).
The control stage receives an electrical signal from switch unit 2GA and transforms the signal into a hydraulic order which is transmitted to the power stage.

(c)Depending on the hydraulic order received the power stage delivers the Green hydraulic pressure to the extension or retraction hydraulic line or connects the lines to reservoir return (centered position of the power stage slide valve).

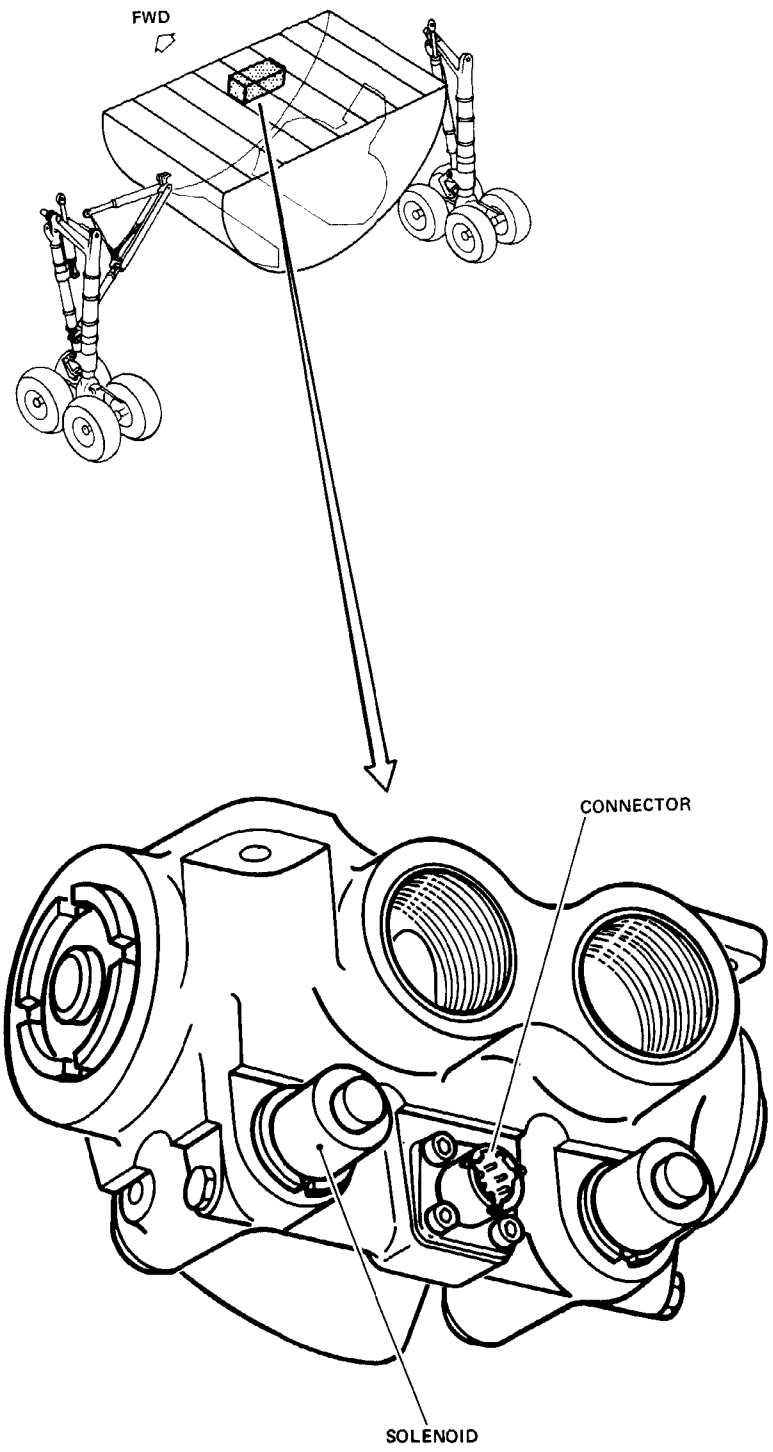
(d)The control stage comprises 2 identical assemblies including a solenoid and a hydraulic valve. One assembly is used for extension operation the other for retraction operation.

(e)The power stage comprises a slide valve and a liner.

(2)Operation
(Ref. Fig. 010)

(a)Solenoid energization (control lever in UP or DOWN position) causes the displacement of a ball valve assembly. Pressure is then delivered to one of the power stage slide valve control chambers. The slide valve is displaced so that the retraction or extension line is connected to the pressure supply and extension or retraction line return port opened.

(b)When the 2 solenoids are de-energized (control lever in Neutral position) the power stage slide valve control chambers are connected to reservoir return. The slide valve is centered (retraction and extension lines connected to reservoir return) by 2 pushrods controlled by the hydraulic pressure. In the absence of pressure the slide valve is held in the center position by springs.



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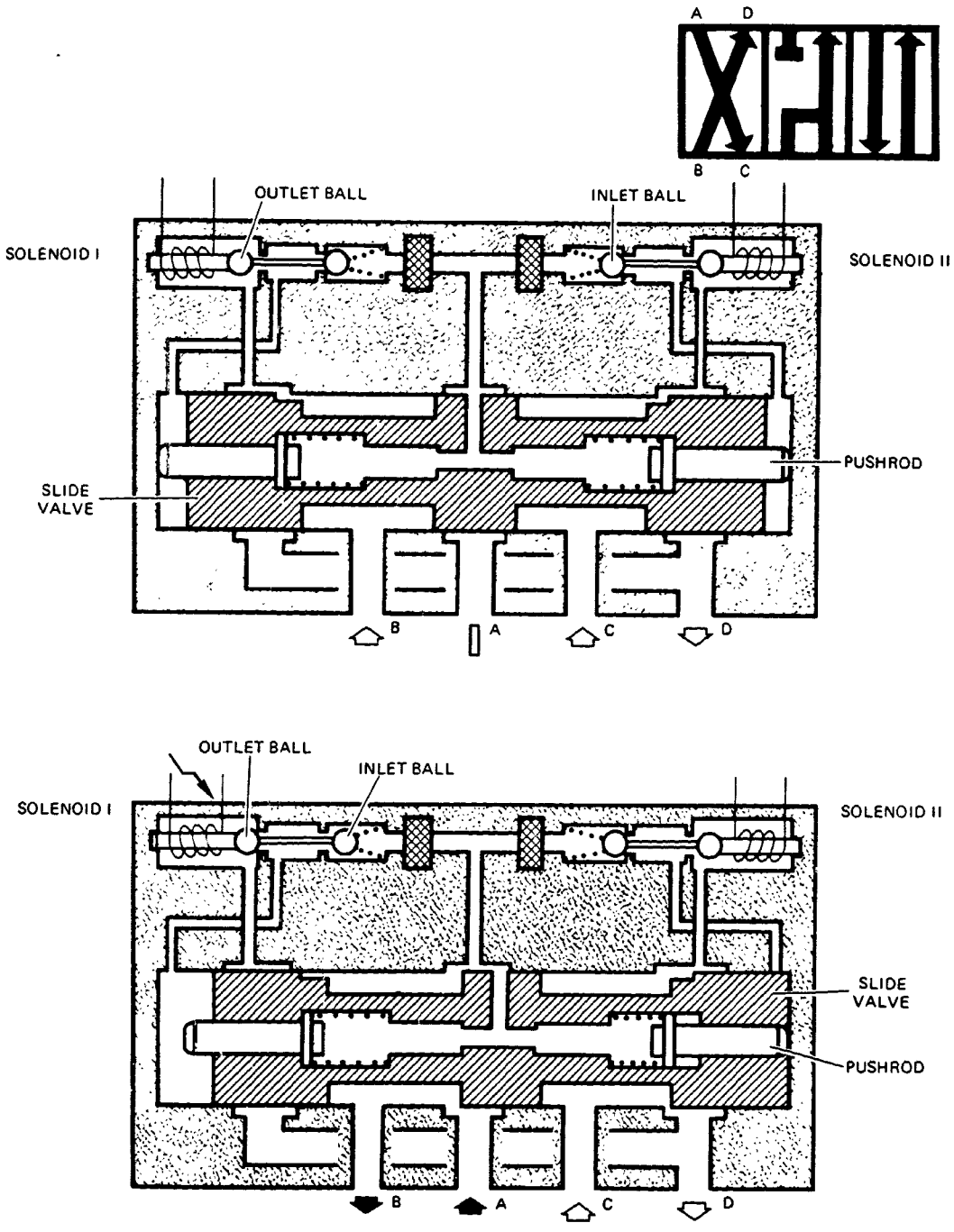
Selector Valve - Location
Figure 009



BM5 32 31 00 0 ADMO

Selector Valve - Schematic
Figure 010

(3)characteristics

Drawing	PR 70199
Weight without fluid	
Identification of hydraulic ports	A Pressure inlet B Extension service port C Retraction service port D Green reservoir return
Pressure drop :	
Solenoid I energized : A to B C to D	4 bars approx. for Q = 150 l/mn
Solenoid II energized : B to D A to C	4 bars approx. for Q = 150 l/mn
Solenoids de-energized : B to D C to D	13 bars approx. for Q = 30 l/mn
Internal leakage flow under 210 bars	≤ 100 cm^3/mn
Solenoids :	
Supply voltage	16 to 31.75 Volts
Operating mode	permanent
Max. consumption	0.8A under 26.5V at -40°C
Resistance	

Control lever in Up position	Solenoid II energized	A to C B to D
Control lever in Neutral position	Solenoids I and II de-energized	B to D C to D
Control lever in DOWN position	Solenoid I energized	A to B C to D

C. Gear Uplocks

(1)General

(Ref. Fig. 011)

(Ref. Fig. 012)

The uplock automatically locks the landing gear in the up position at the end of the landing gear retraction cycle and remains locked until the uplock release order is received.

(2)Operation (Ref. Fig. 013, 014, 015)

(Ref. Fig. 017, 018)

(Ref. Fig. 016, 019, 020)

(Ref. Fig. 021, 022)

(a)Uplock release can be achieved by two independent systems :

1 Hydraulically with Green system pressure delivered by the gear sequence valves controlled by the doors (normal mode)

2 Mechanically by means of the release lever provided (free fall mode).

(b)The door sequence valve is incorporated in the uplock assembly together with the mechanism controlling displacement of the slide valve :

1 Upon gear uplock under the action of the locking lever actuated by the springs and the locking dash-pot.

2 Upon gear downlock, gear movement being transmitted to the mechanism by a lever.

(Ref. Fig. 023, 024)

(c)This movement of the door sequence valve slide valve causes door closure upon completion of the gear retraction or extension cycle.

(d)At the following cycle, inversion of the hydraulic pressure causes the doors to open : gear uplock or downlock release causes the door sequence valve slide valve to adopt a position such that the doors are held open by the pressure and by locking of the pressure in the door actuating cylinder opening side chamber.

(e)The Free Fall mechanism uplock release control first causes the uplock release lever to disengage from the door sequence valve slide valve so that uplock release remains possible even if the slide valve is seized. Initial movement of the control does not, therefore, result in gear uplock release thus enabling door uplock release to be achieved before that of the gear.

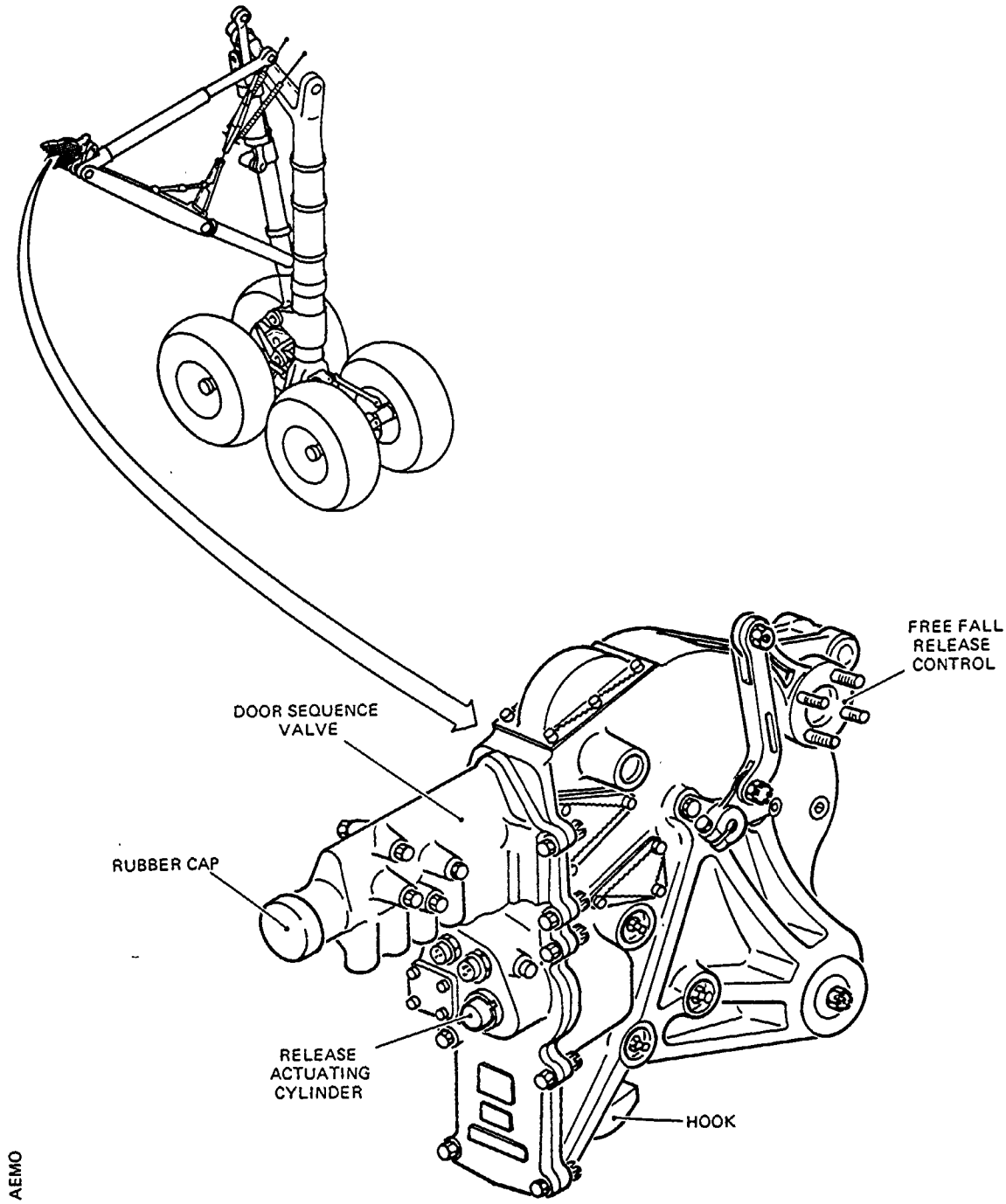
(f)In the event of seizure of the door sequence valve slide valve in the gear downlocked position, the beginning of the gear retraction cycle causes the rupture of a shear pin inside the sequence valve and the movement of a second slide valve, inside the former, which prevents door closure at the end of the gear retraction cycle and subsequent interference between the gear and the door during the following extension cycle.

(g)To cover the risk of door sequence valve slide valve seizure at the beginning of, or during the extension cycle, a spring rod is incorporated in the gear-to-slide valve linkage and gear downlocking is not hindered.

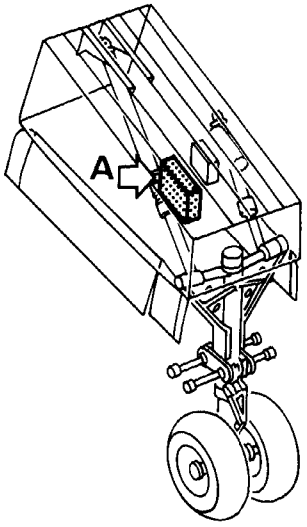
1 For each main gear, the spring rod is directly connected to the uplock mechanism

2 For the nose gear, the spring rod is installed in the linkage at approximately one metre from the uplock.

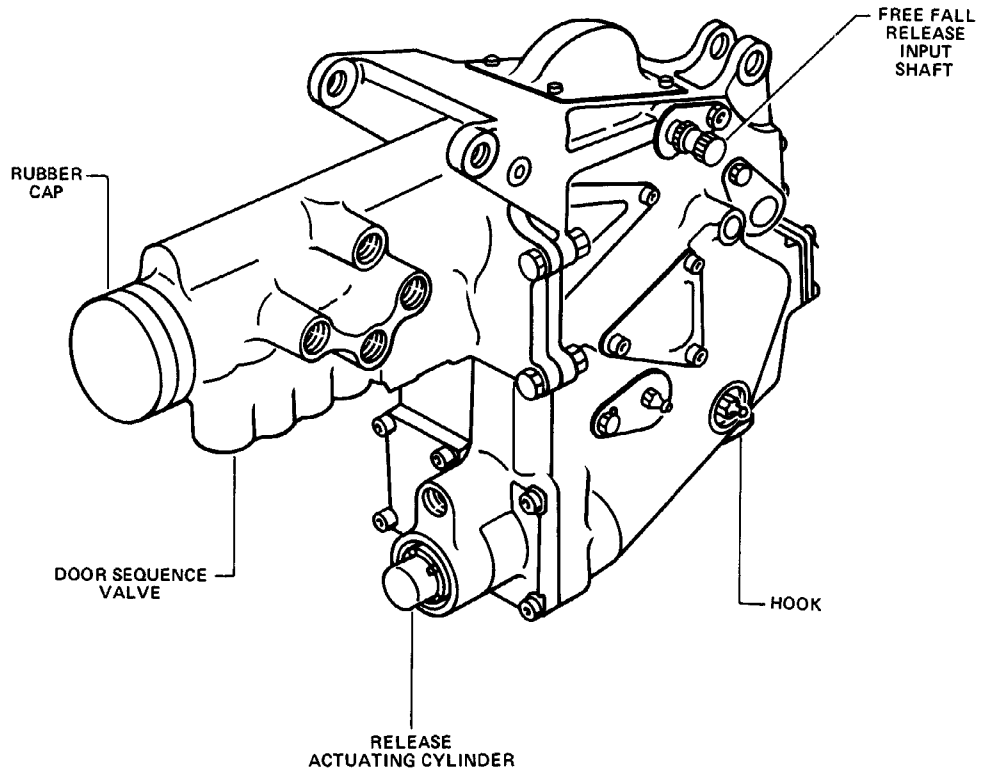
(h)A mechanism prevents manual locking of the hook with the gear



Main Gear Uplocks - Location
Figure 011



A



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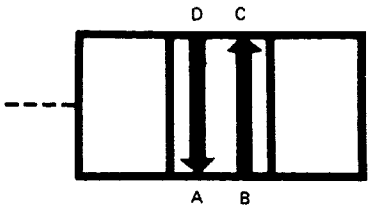
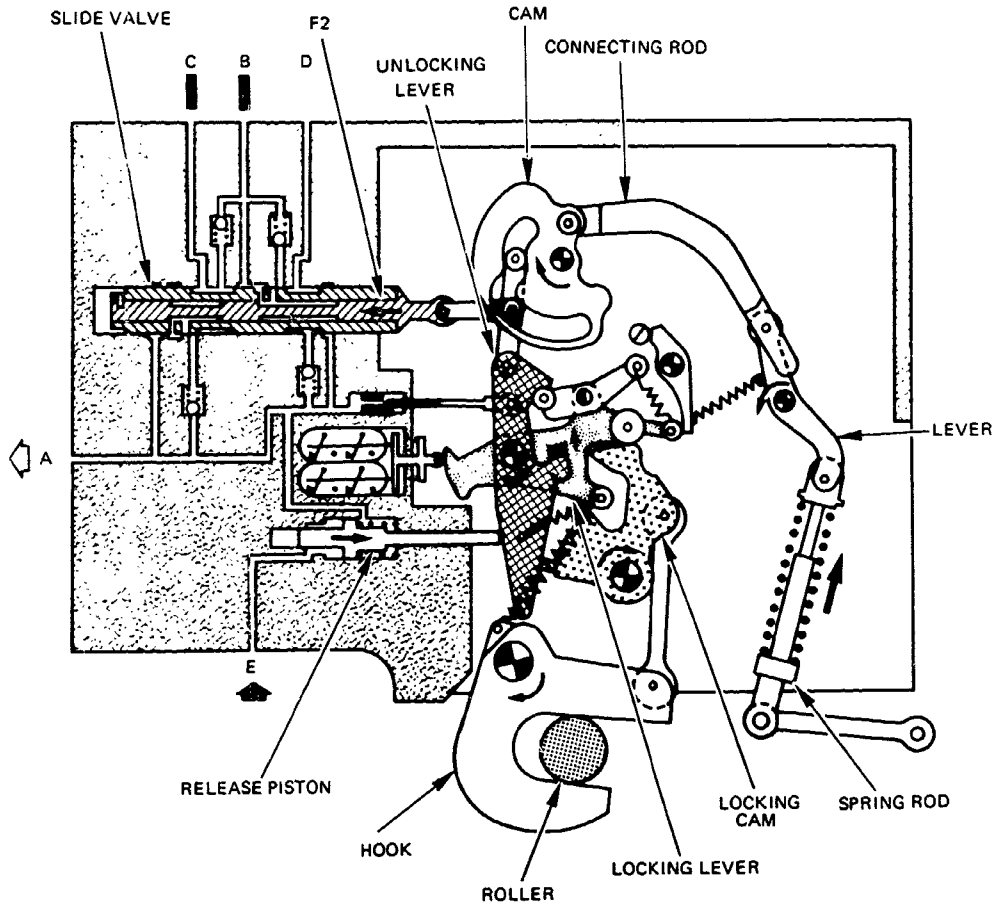
DM5

Nose Gear Uplocks - Location
Figure 012





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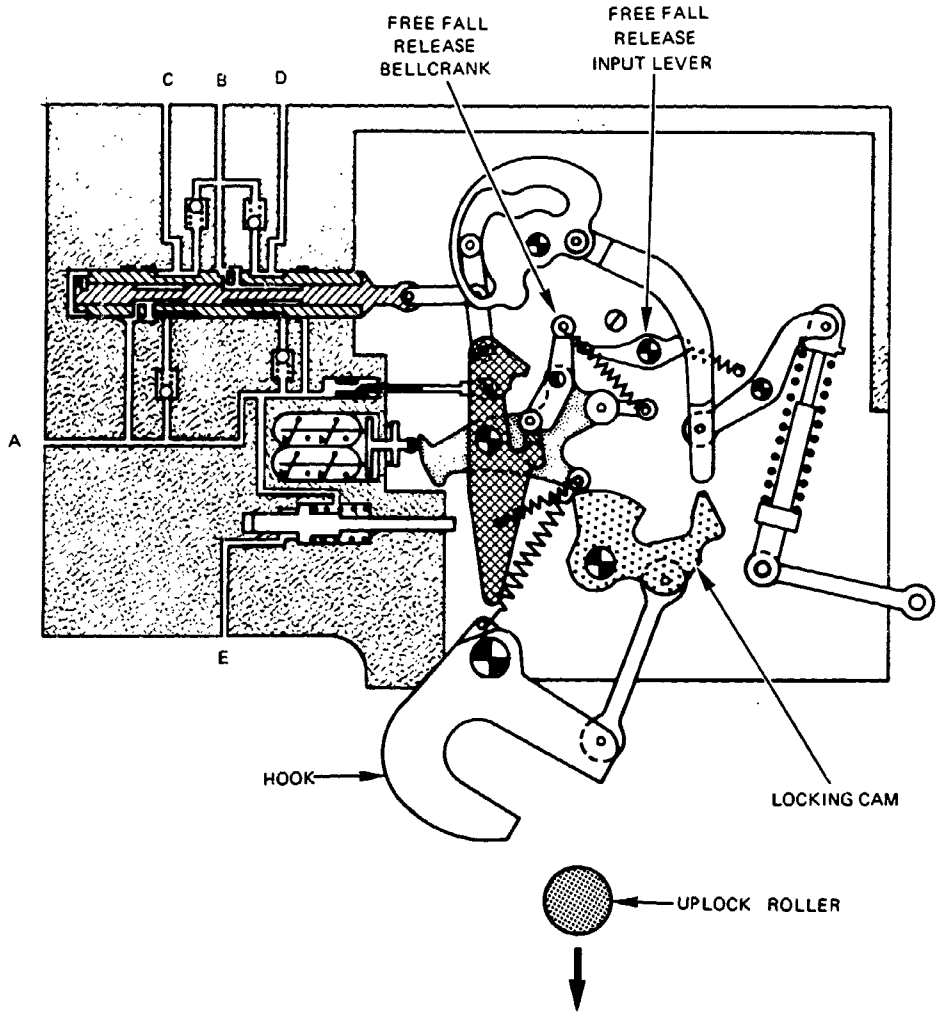
Main Gear Uplock - Door Open, Gear Uplock Release
Figure 013



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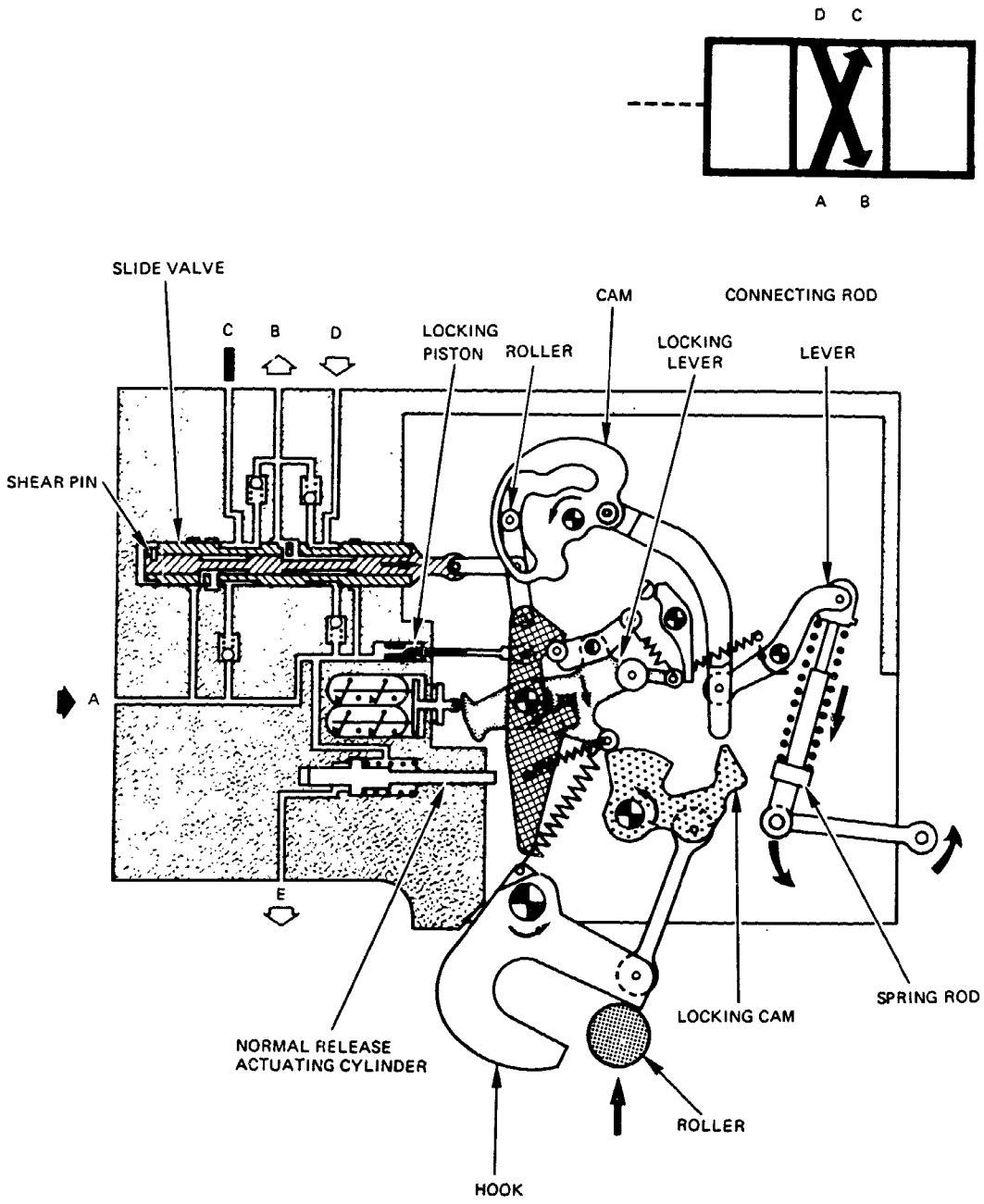
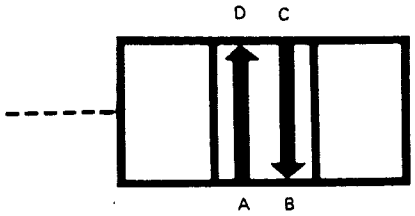
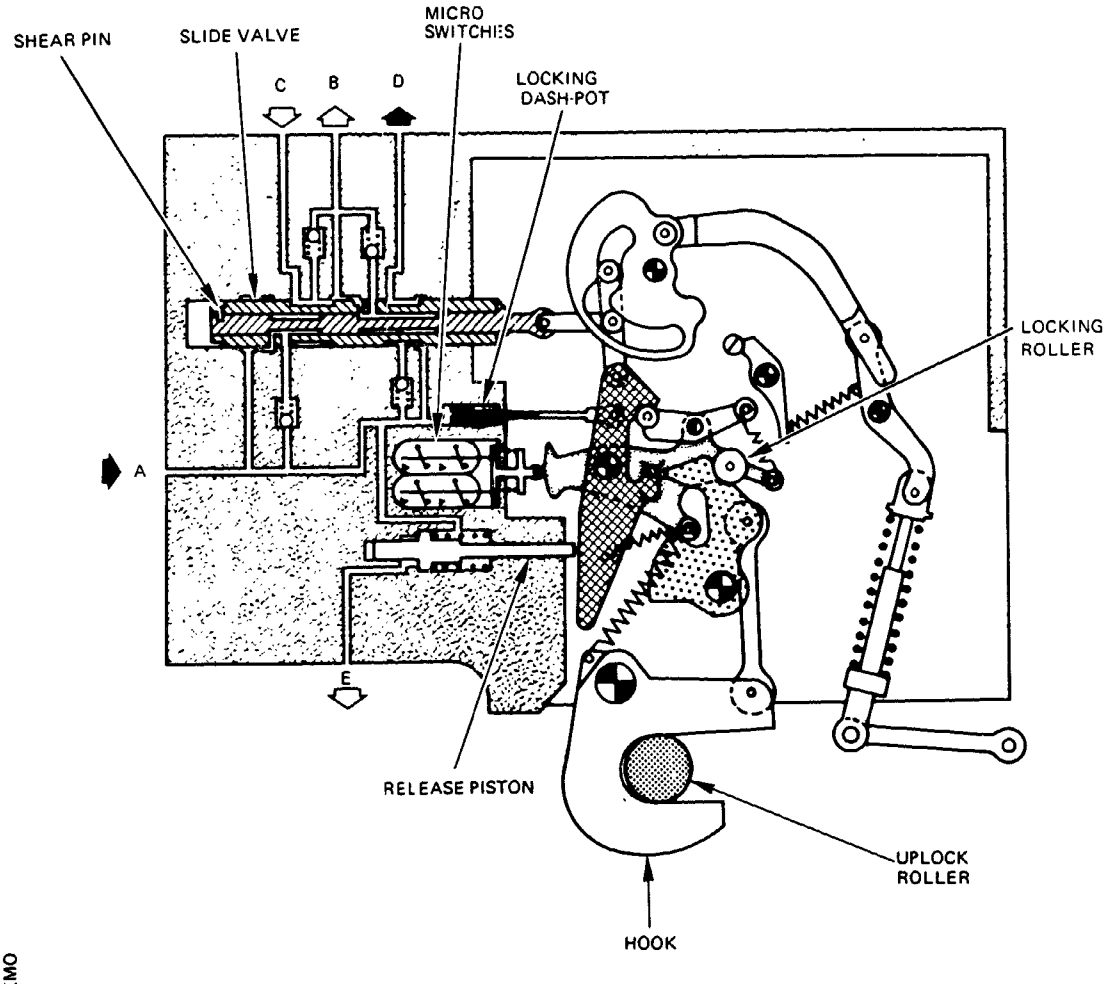
Main Gear Uplock - Door Open, Gear Extending
Figure 014



BM5 32 31 00 0 AJMO

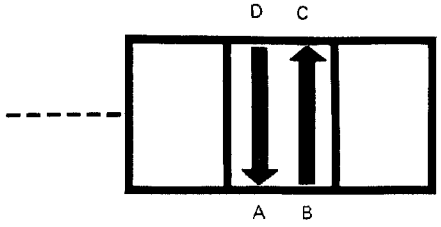
Main Gear Uplock - Door Open, Gear Retracting
Figure 015

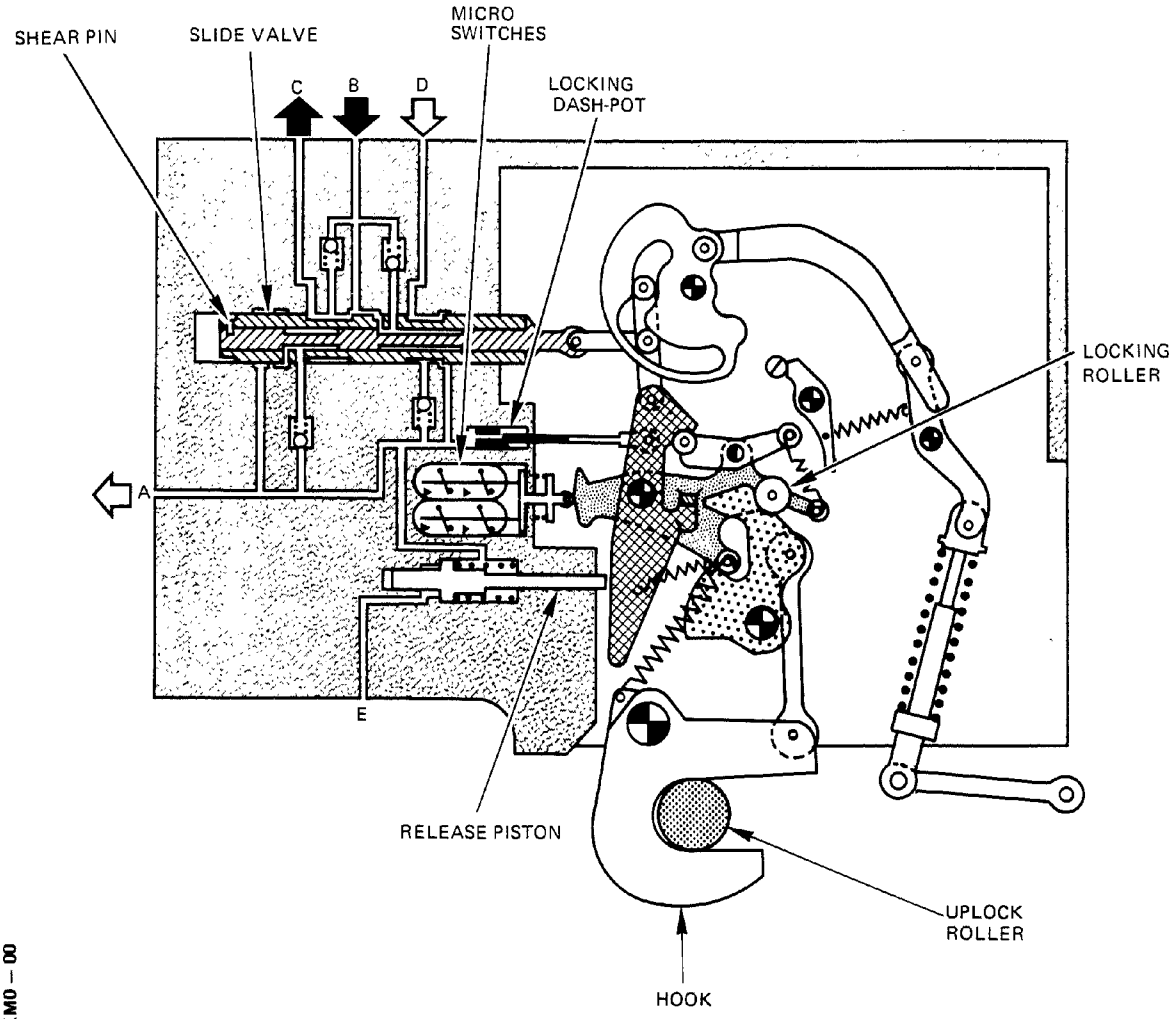




BM5 32 31 00 0 GKMO

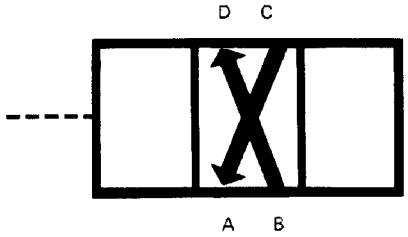
Main Gear Uplock - Gear Uplocked, Door Closing
Figure 016

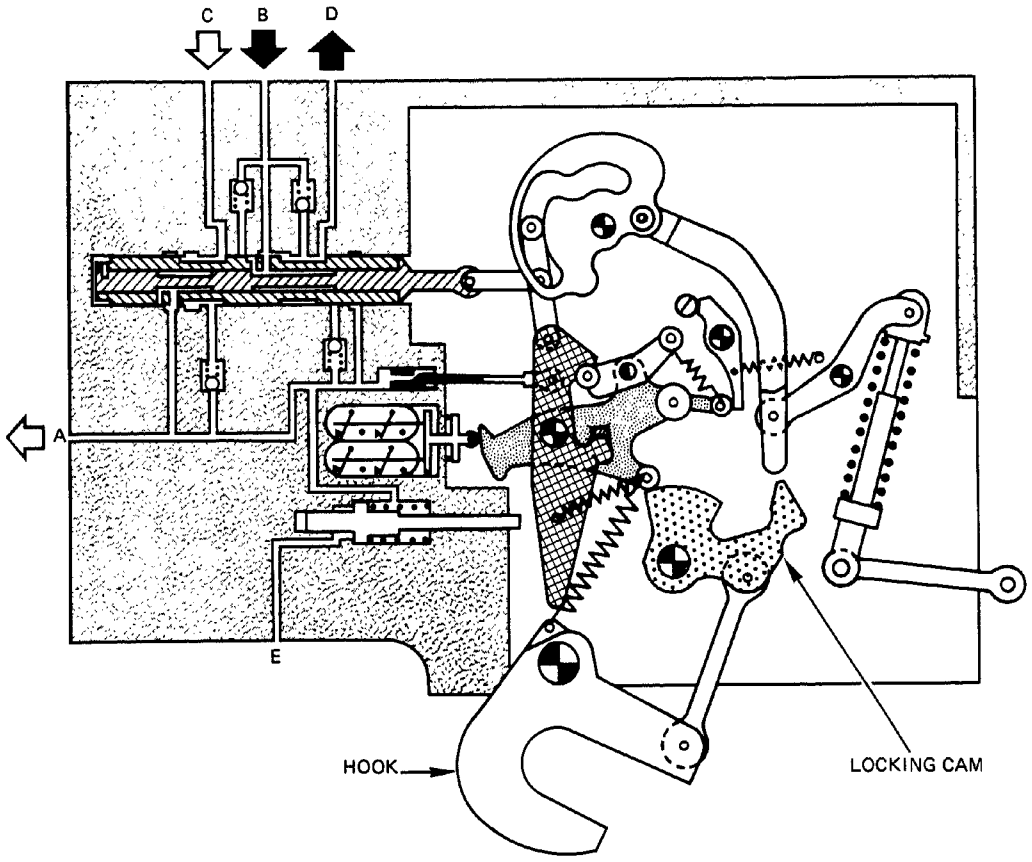




BM5 32 31 00 0 DKM0 – 00

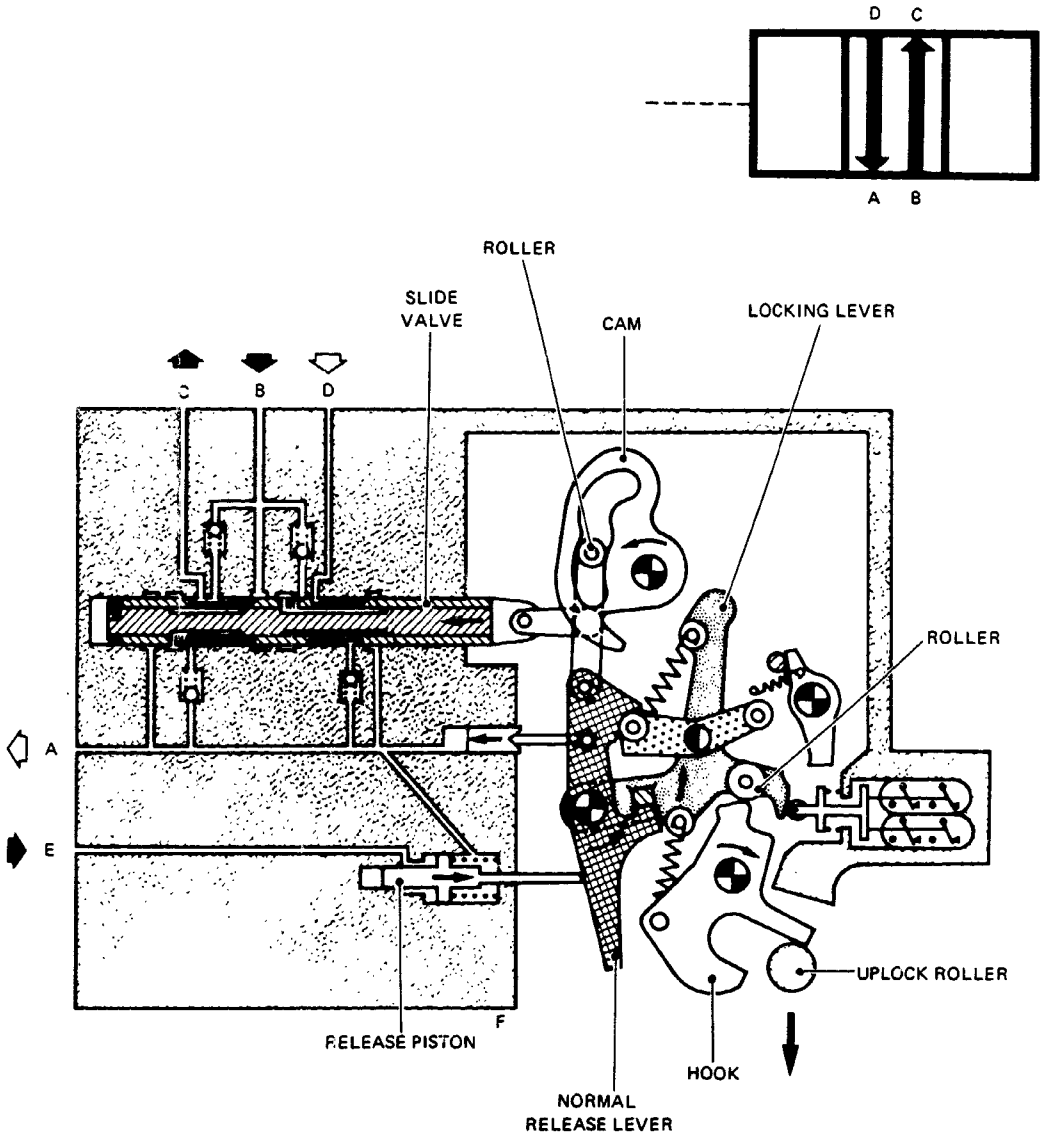
Main Gear Uplock - Gear Uplocked, Door Opening
Figure 017





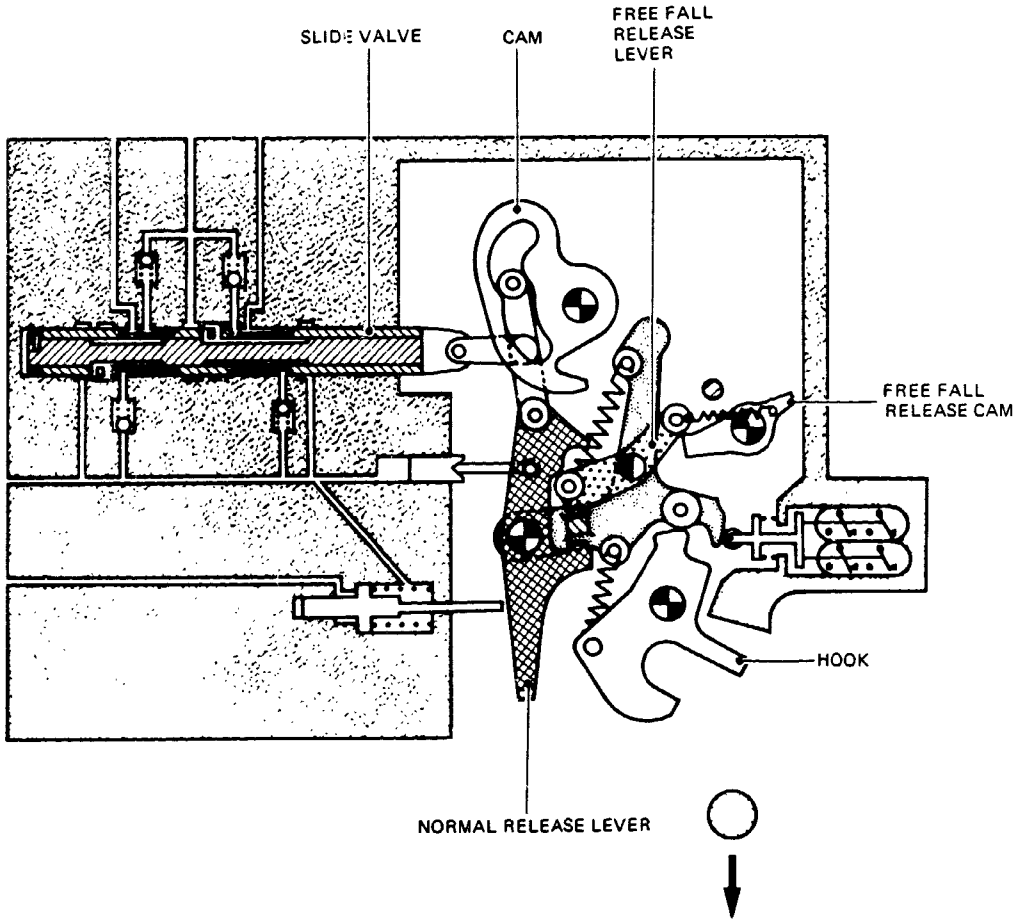
BM5 32 31 00 0 KKM0 – 00

Main Gear Uplock - Gear Extended, Door Closing
Figure 018



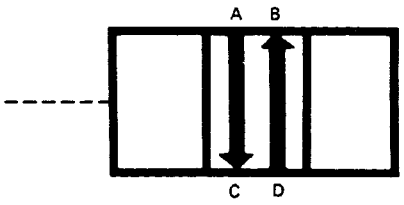
BM5 32 31 00 0 APMO

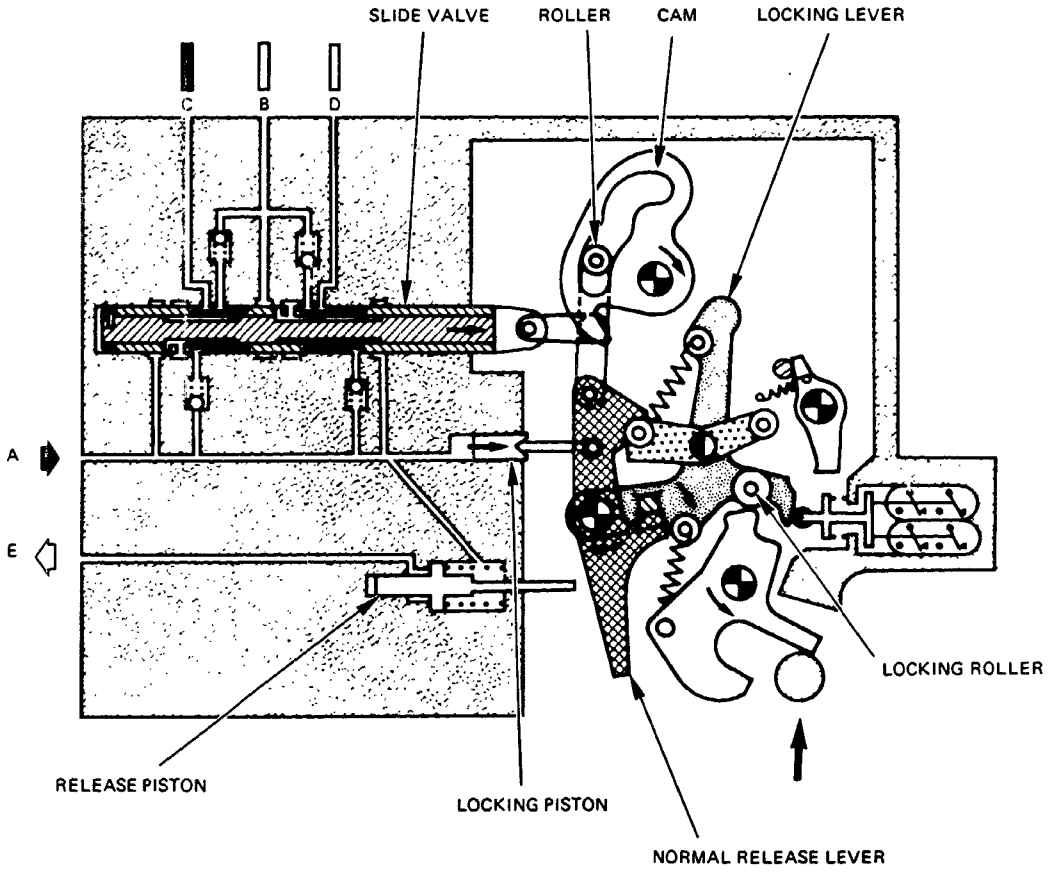
Nose Gear Uplock - Doors Open, Gear Uplock Release
Figure 019



BM5 32 31 00 0 A0MO

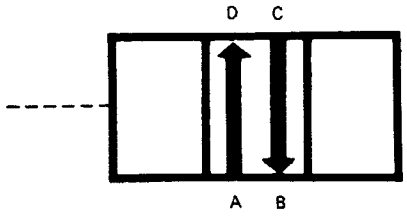
Nose Gear Uplock - Doors Open Gear Extending
Figure 020

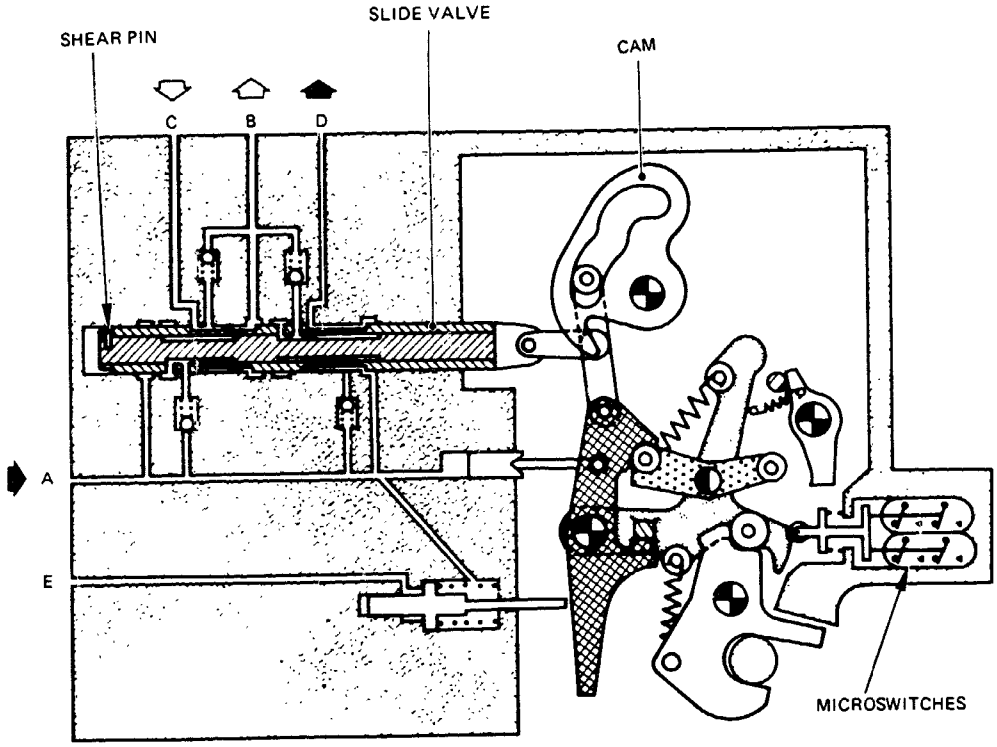




BM5 32 31 00 0 ARMO

Nose Gear Uplock - Doors Open, Gear Retracting
Figure 021

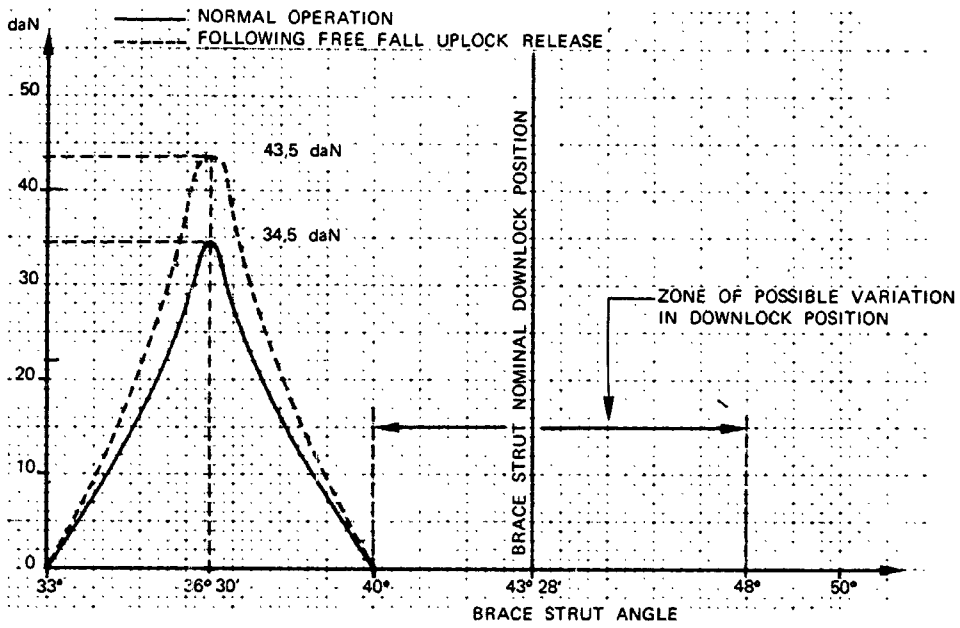




BM5 32 31 00 0 GLMO

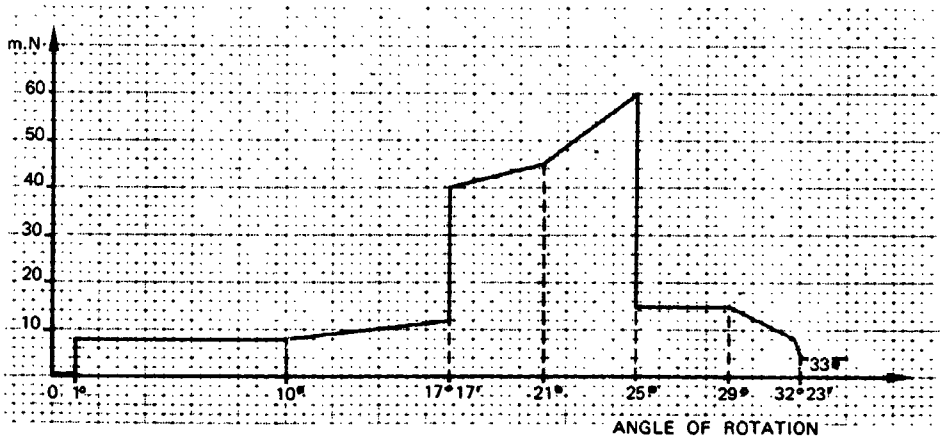
Nose Gear Uplock - Gear Uplocked, Doors Closing
Figure 022

SPRING ROD LOADS IN daN WITH CONSTANT OPPOSING LOAD
AT SLIDE VALVE OF 250 NEWTON (SEE CHART)



FREE FALL UPLOCK RELEASE CONTROL OPERATING MOMENT
SEE CHART (WITH LOAD ON HOOK = 45000 N)

MAXIMUM PERMISSIBLE TORQUE ON UPLOCK FREE FALL
RELEASE CONTROL SHAFT : 560mN



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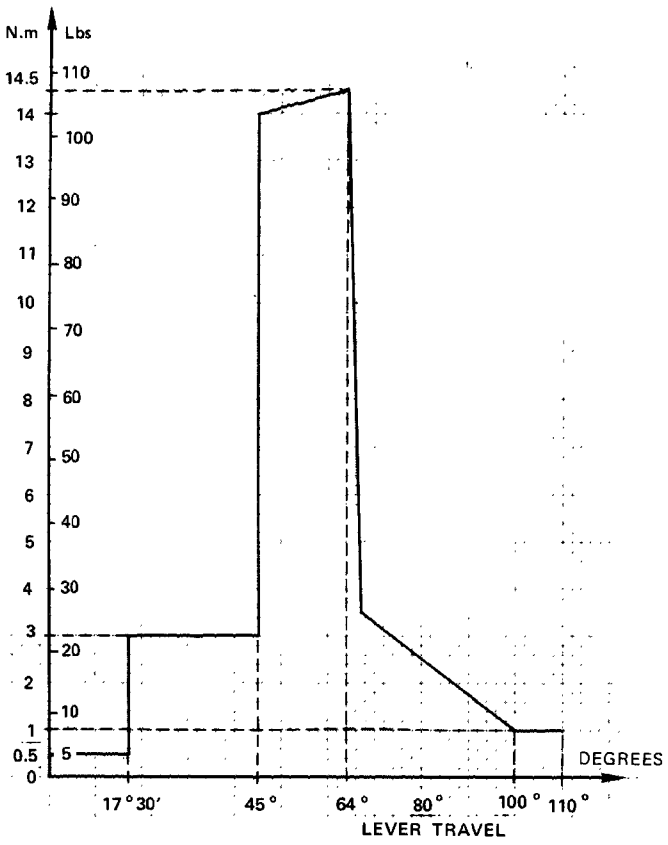
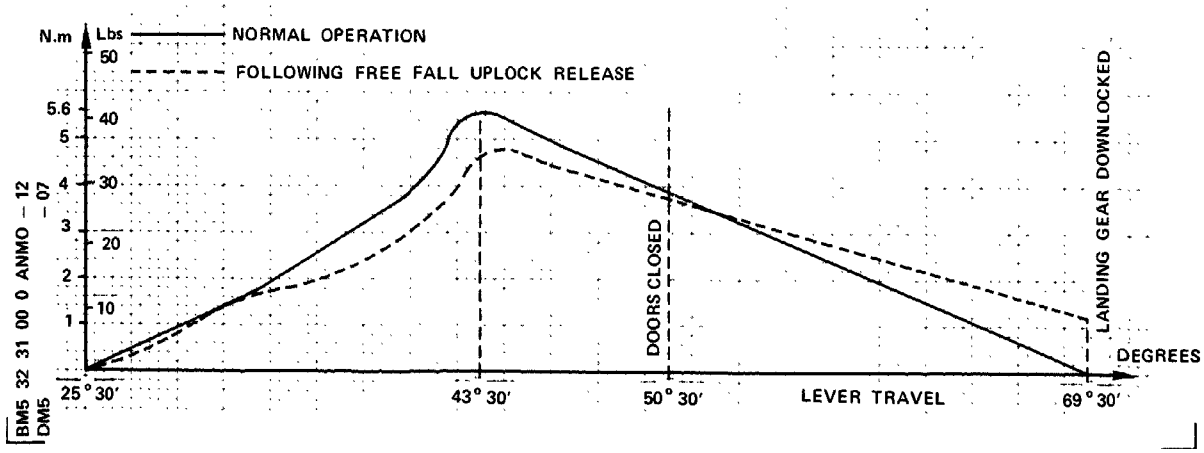
Main Gear Uplock Load Diagrams - Spring Rod - Free Fall Release
Figure 023

FREE FALL RELEASE CONTROL LOAD DIAGRAM



DOOR SEQUENCE VALVE CONTROL CAM OPERATING TORQUES WITH A CONSTANT OPPOSING LOAD AT THE SLIDE VALVE OF 250 NEWTON



Nose Gear Uplock - Load Diagrams - Sequence Valve Control Cam - Free Fall Release
Figure 024

downlocked.

(i)A microswitch indicates positive locking of the hook (microswitch plunger extended). The microswitch is interchangeable without adjustment.

(j)A rigging hole in the Free Fall mechanical release input is provided for locking the control in the normal position to enable adjustment of the mechanical control.

(3)Characteristics

	Nose Gear Uplock	Main Gear Uplock
Drawing	PA25421001	LH - PA25451002 RH - PA25452002
Weight without fluid	10.130 Kg	19.550 Kg
Identification of hydraulic ports	A - Retraction pressure inlet B - Extension pressure inlet C - Door opening service outlet D - Door closing service outlet E - Uplock release pressure inlet	A - Retraction pressure inlet B - Extension pressure inlet C - Door opening service outlet D - Door closing service outlet E - Uplock release pressure inlet
Permissible loads on the hook at elastic limit	F : 2500 daN	F : 12000 daN
Uplock release pressure	50 bars for F : 1200 daN	50 bars for F : 5200 daN
Sequence valve control load or torque at slide valve mechanical input	Ref. chart of cam operating torque	Ref. chart of spring rod loads
Load or torque at mechanical input for rupture of shear point	Torque : 11 m.daN	F : 690 daN
Load or torque at mechanical input for spring rod compression or extension during gear extension	Torque : 3 to 3.5 m.daN	F : 40 to 75 daN
Operating moment on control shaft for Free Fall uplock release	Ref. chart	Ref. chart
Maximum permissible twisting moment on Free Fall release control shaft	15 m.daN	56 m.daN
R Pressure drop from :		
R A to C	For Q = 50 l/mn,	For Q = 50 l/mn,
R	$\Delta P \leq 15$ bars	$\Delta P \leq 15$ bars
R A to D	For Q = 20 l/mn,	For Q = 20 l/mn,
R	$\Delta P \leq 5$ bars	$\Delta P \leq 5$ bars

	Nose Gear Uplock	Main Gear Uplock
R B to C	For Q = 50 l/mn, ΔP ≤ 15 bars	For Q = 50 l/mn, ΔP ≤ 15 bars
R B to D	For Q = 20 l/mn, ΔP ≤ 4 bars	For Q = 20 l/mn, ΔP ≤ 4 bars
R Maximum internal leakage from : A to B with 206 bars at A	Position 1 Q ≤ 300 cm^3/mn	Position 1 Q ≤ 300 cm^3/mn
R	Position 2 Q ≤ 150 cm^3/mn	Position 2 Q ≤ 150 cm^3/mn
R B to A with 206 bars at B	Q ≤ 250 cm^3/mn	Q ≤ 250 cm^3/mn
R A to D with 206 bars at A	Q ≤ 200 cm^3/mn	Q ≤ 200 cm^3/mn
R B to D with 206 bars at B	Q ≤ 150 cm^3/mn	Q ≤ 150 cm^3/mn

D. Door Uplocks

(1)General (Ref. Fig. 025, 026)

(a)One uplock is provided for each landing gear main door, i.e. :

- 2 uplocks (identical) for the nose gear doors
- 2 uplocks (identical) for the main gear doors

(b)Each uplock automatically locks the corresponding door upon door closure and remains locked unitl the uplock release order is received.

(2)Operation (Ref. Fig. 027, 028)

(a)Uplock release can be achieved hydraulically with Green system pressure or mechanically by actuation of one of the two mechanical release levers, one of which is used for Free Fall uplock release when Green pressure is not available, the other for manual opening of the door on the ground.

(b)A microswitch indicates positive locking of the hook (microswitch plunger extended). The microswitch is interchangeable without adjustment.

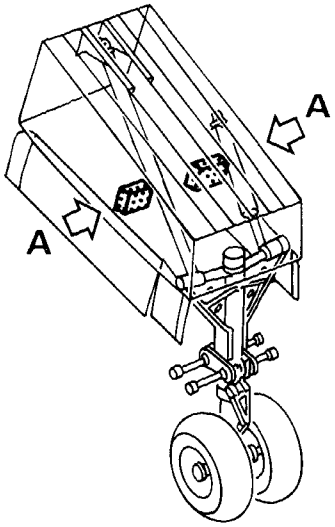
(c)A rigging hole is provided for locking the Free Fall release mechanical input in the normal position for adjustment purposes.

(d)A rigging hole is also provided in the door ground opening mechanical control input.

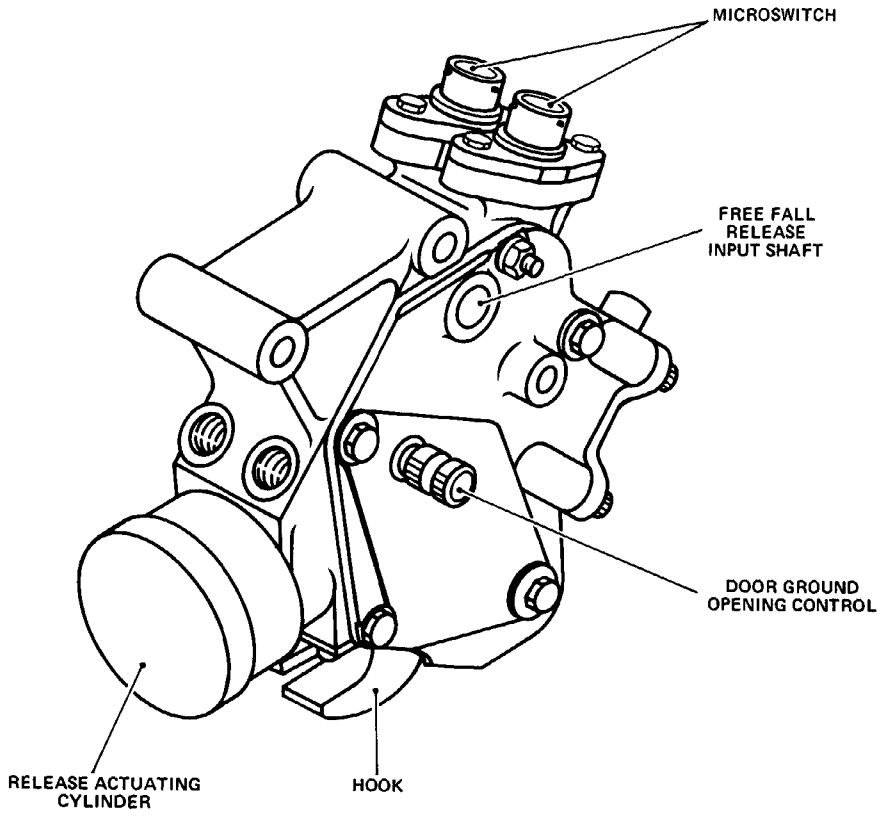
(3)Characteristics

	Nose Gear Door Uplock	Main Gear Door Uplock
Drawing	PA 25431001	PA 25441001
Weight without fluid	2.650 Kg	3.200 Kg
Identification of hydraulic ports	A - Normal release B - Normal resetting	A - Normal release B - Normal resetting
Permissible loads on the hook at elastic limit	F : 2000 daN	F : 2400 daN

	Nose Gear Door Uplock	Main Gear Door Uplock
Uplock release pressure	20 ± 5 bars for F : 600 daN	16 ± 5 bars for F : 180 daN
Operating moment on Free Fall release control shaft	For F : 380 daN M ≤ 0.5 m.daN	For F : 90 daN M ≤ 0.3 m.daN
Maximum permissible twisting moment on Free Fall release control shaft	11 m.daN	13 m.daN
Operating moment on door ground opening shaft	For F : 30 daN M ≤ 0.5 m.daN	For F : 60 daN M ≤ 0.4 m.daN
Maximum permissible moment on internal stops	0.8 m.daN	0.8 m.daN



A



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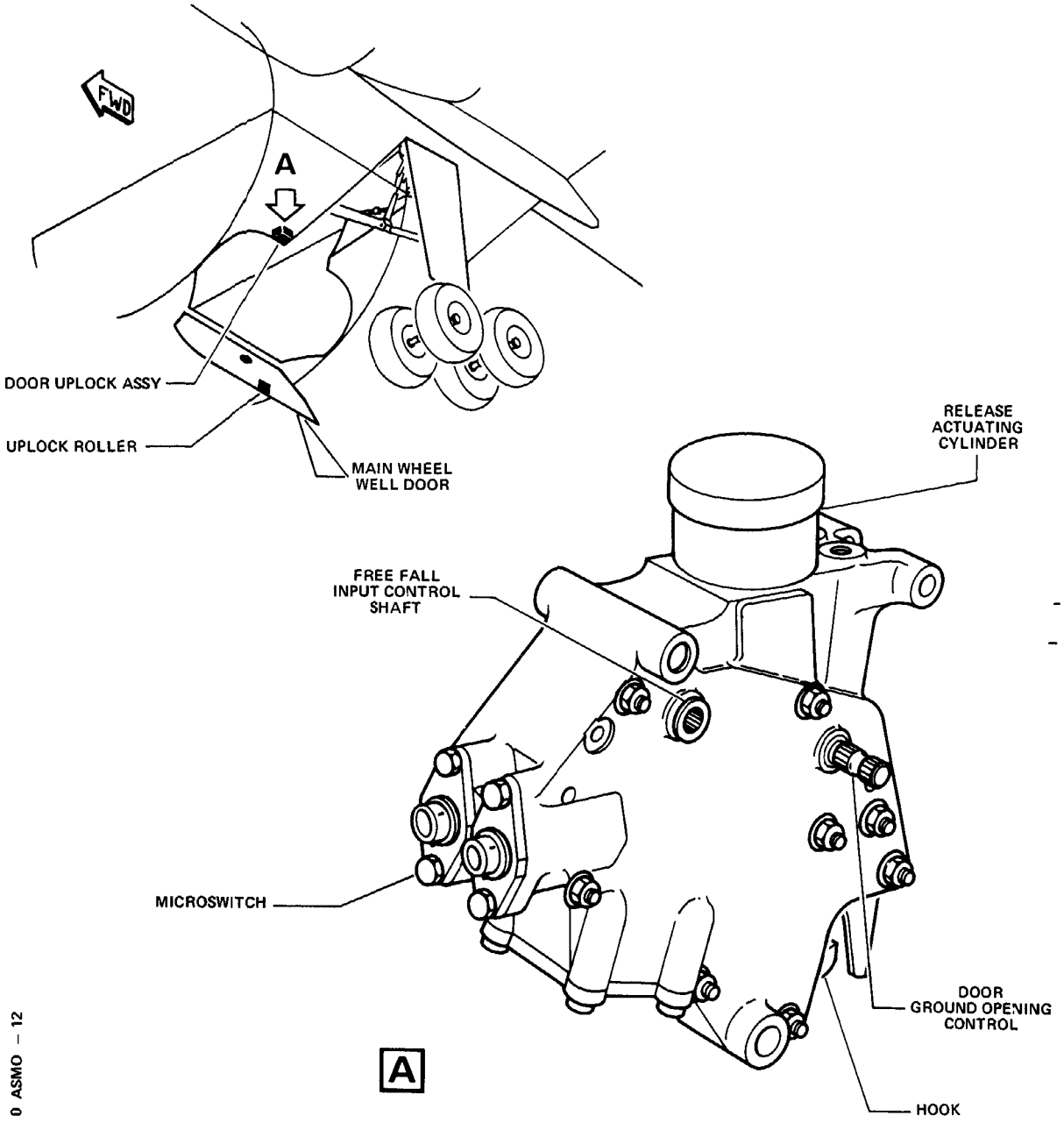
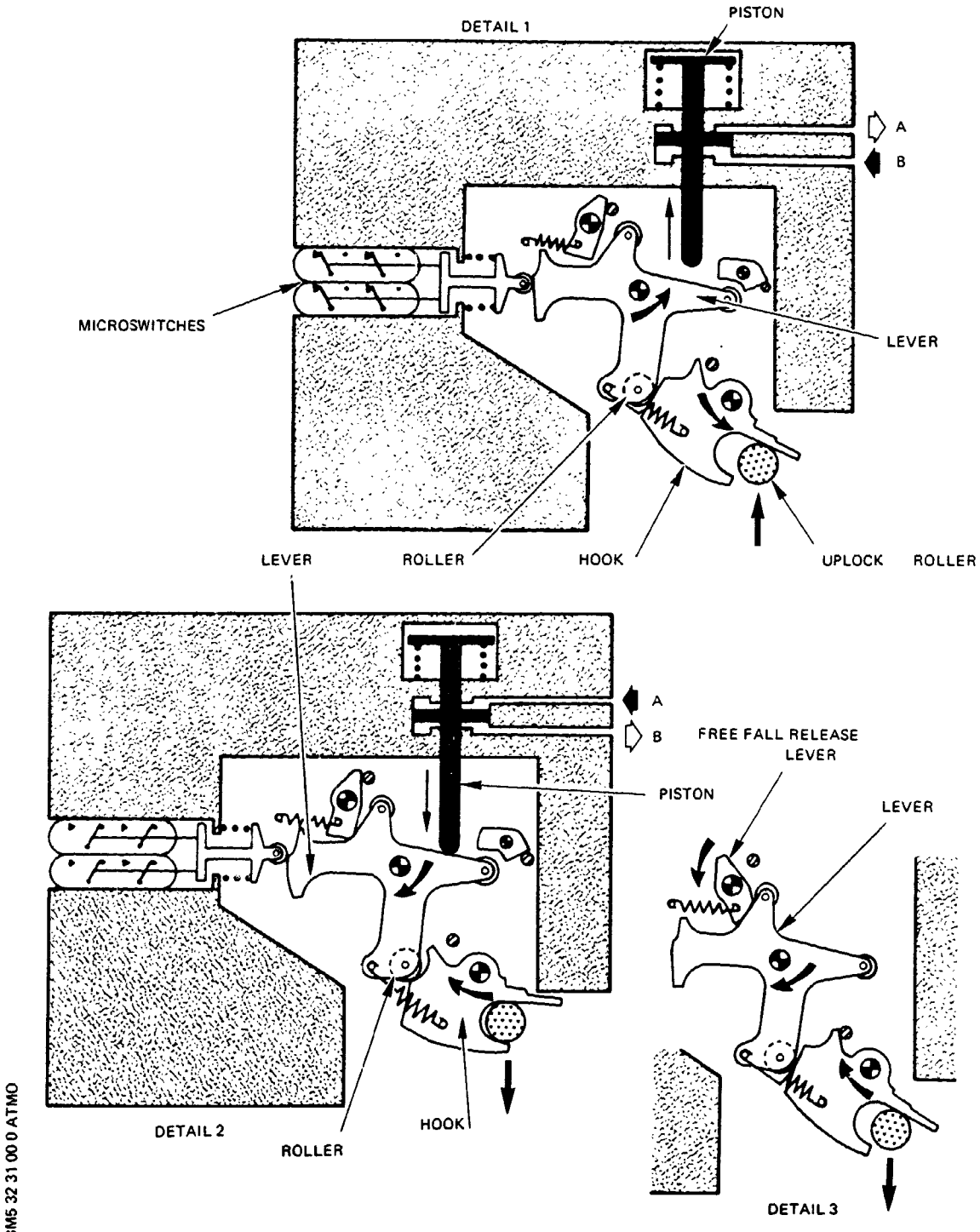
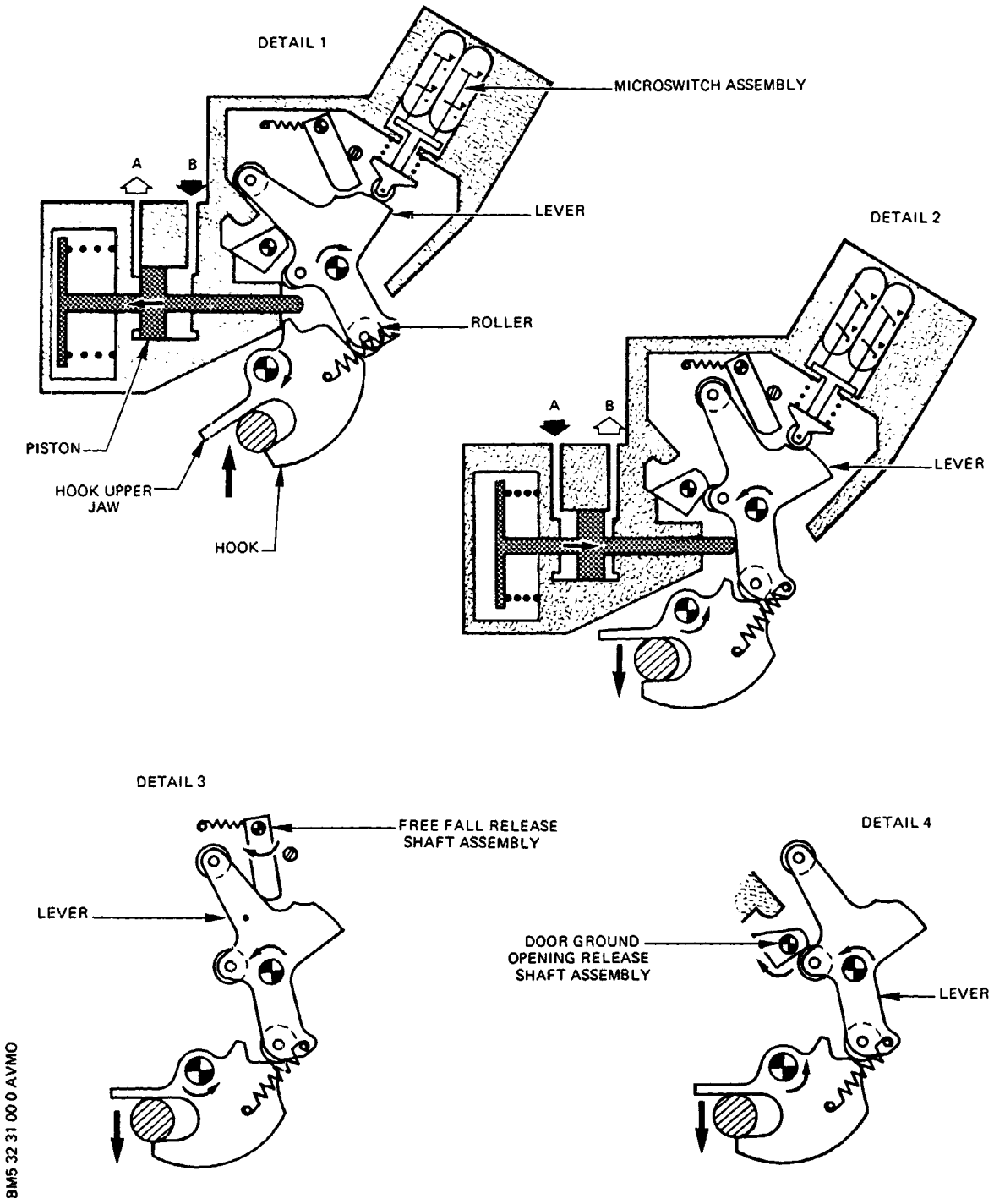
Nose Gear Door Uplocks - Location
Figure 025



Main Gear Door Uplocks - Location
Figure 026



Main Gear Door Uplock - Schematic
Figure 027



Nose Gear Door Uplock - Schematic
Figure 028

E. Main Gear Door Actuating Cylinder

(1)General

(Ref. Fig. 029, 030)

The main gear door actuating cylinder is of the double-acting type equipped with two damping systems providing constant slow-down during rod extension (door opening) and end of travel slow-down during rod retraction (door closing).

(2)Description

(a)Slow-down at the end of rod retraction is achieved by closure of the normal return orifice and passage of the fluid through an orifice of smaller dimensions (restriction of fluid flow).

(b)Slow-down during rod extension is achieved by limiting the rate of flow to return by expelling the fluid through the orifice of a restrictor valve. At the same time supply fluid to the opening chamber also passes through a restrictor valve so as to maintain the pressure in the opening chamber at the limit of cavitation and thus limit shocks in the actuating cylinder at the end of the opening cycle.

(c)In the door open position, the rod bears on an internal stop.

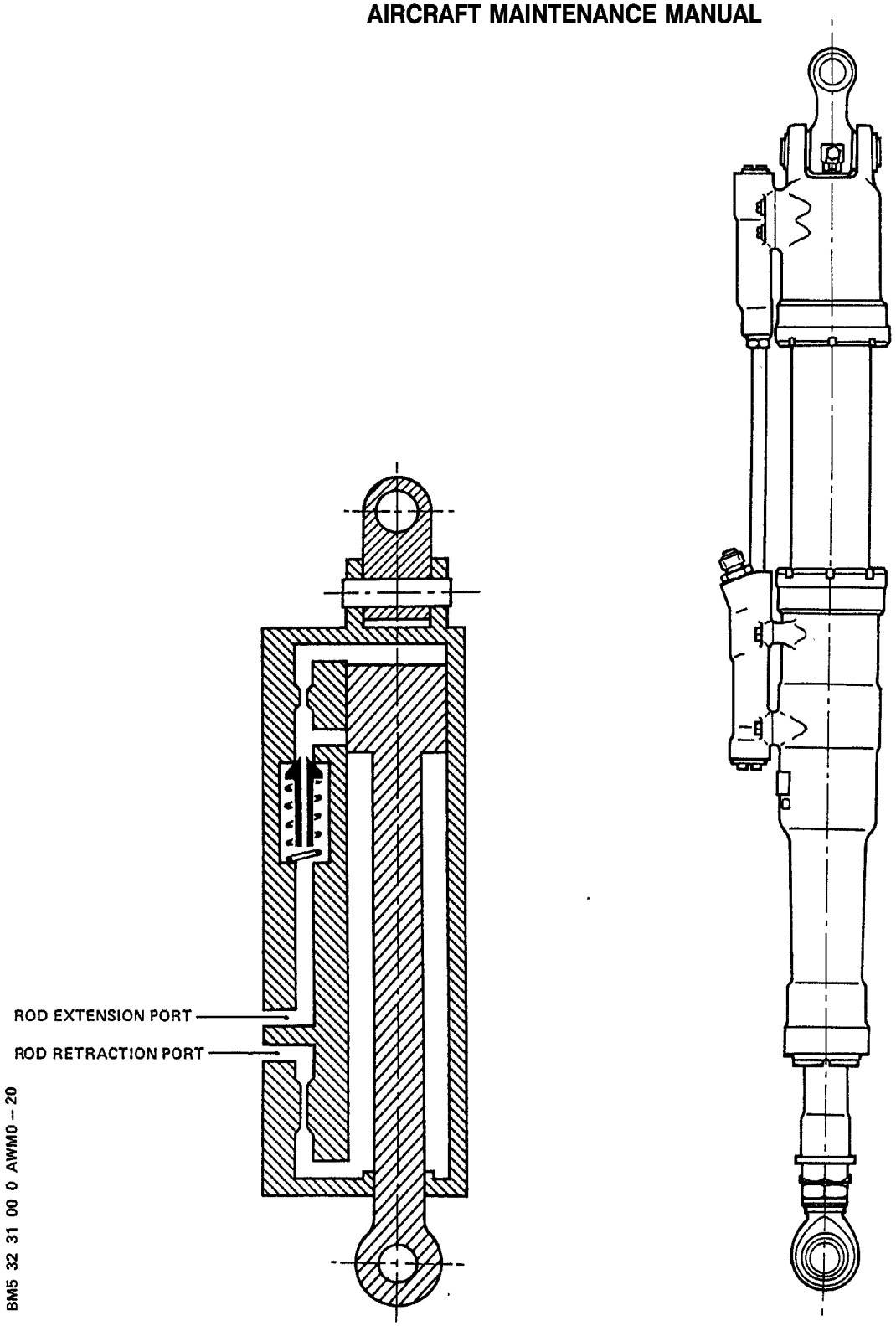
(d)In the door closed position, end-of-travel clearance is provided and the rod does not bottom.

(e)The actuating cylinder rod is equipped with a spherical end fitting (door side).

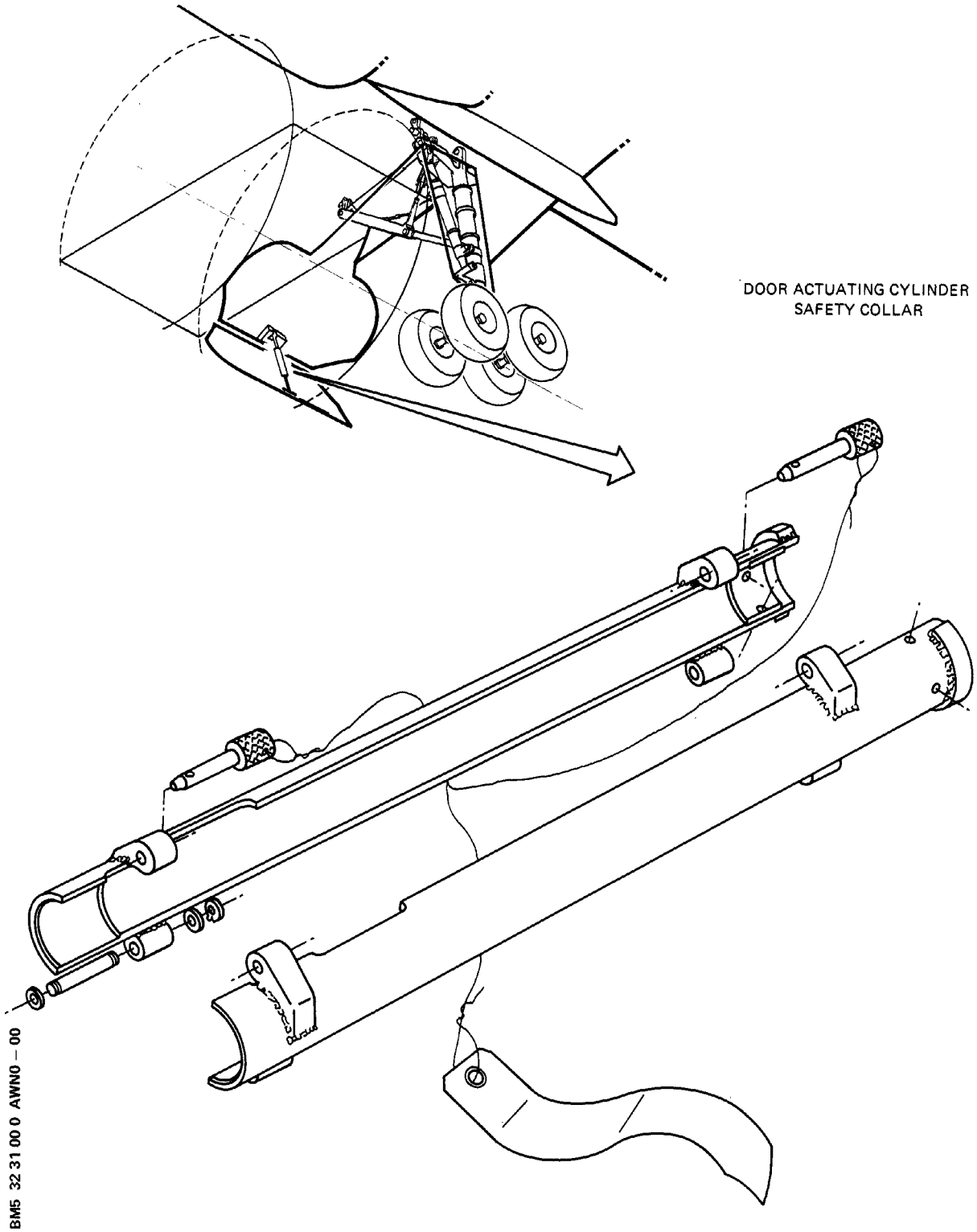
(f)The actuating cylinder body is equipped with a gimbal joint (structure side).

(3)characteristics

Drawing	18500-100-00
Weight without fluid	14.1 Kg
Identification of hydraulic ports	A - Rod retraction : to be B - Rod extension : confirmed
Center-to-center distances with rod in stop position	
- Rod extended	1513 ± 5 mm
- Rod retracted	1050 ± 5 mm
Maximum travel	
Stop-to-stop :	463 mm
Effective stroke :	453 mm
Slow-down travel at end of rod retraction cycle :	35 mm
Operating surfaces :	
Rod retraction :	20.32 cm^2
Rod extension :	31.67 cm^2



Main Gear Door Actuating Cylinder
Figure 029



Main Gear Door Actuating Cylinder - Safety Collar
Figure 030

F. Nose Gear Door Actuating Cylinder

(1)General (Ref. Fig. 031)

The nose gear door actuating cylinder is of the double-acting type equipped with two damping systems which slow down travel at the end of the rod extension and retraction cycles.

(2)Description (Ref. Fig. 032)

(a)Slow-down at the end of rod retraction is achieved by closure of the normal return orifice and passage of the fluid through an orifice of smaller dimensions.

(b)Slow-down at the end of rod extension is also achieved by expelling the fluid through a small-dimension orifice with a pressure relief valve connected in parallel.

(c)In the door open position the rod bears on an internal stop.

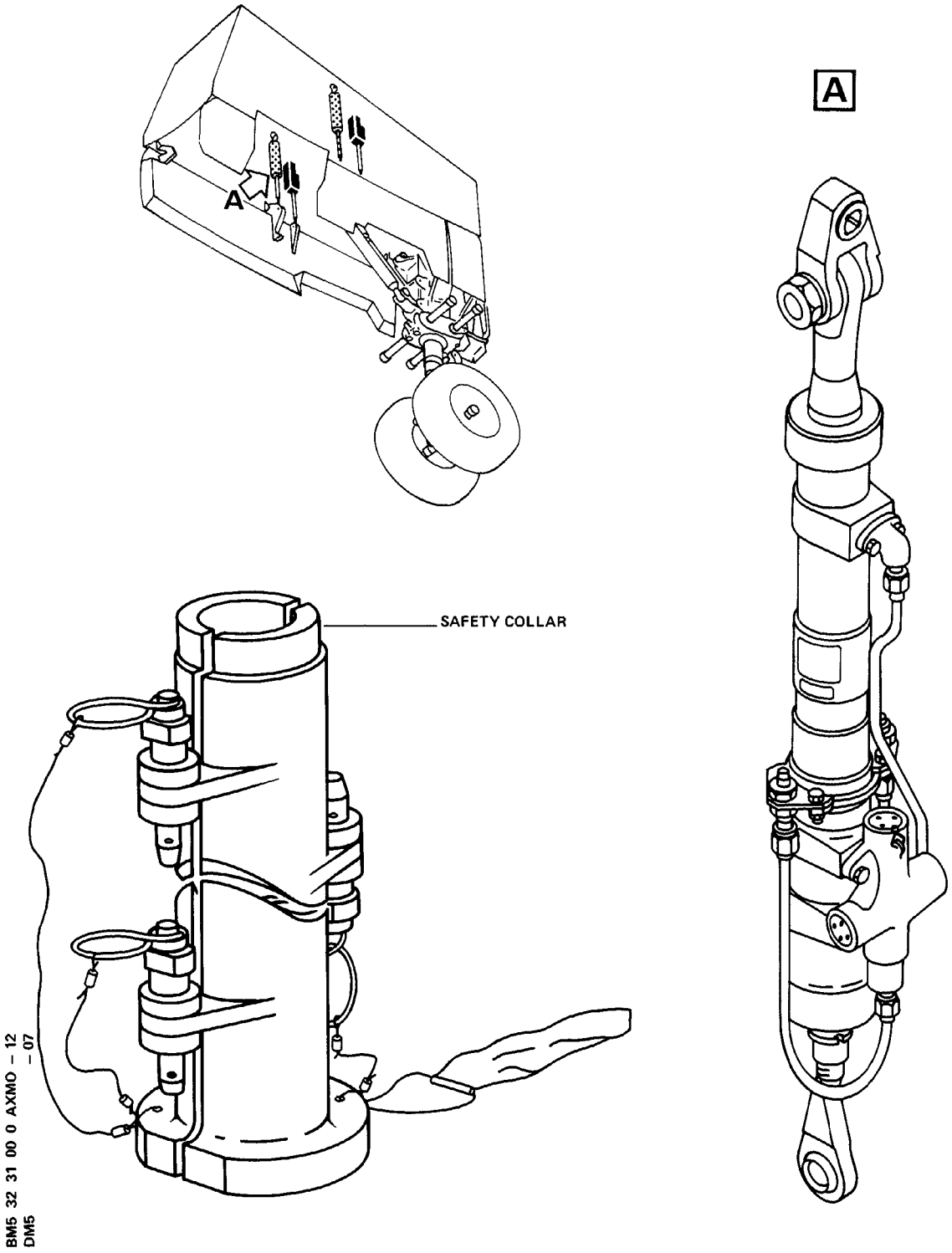
(d)In the door closed position, end of travel clearance is provided and the rod does not bottom.

(e)The actuating cylinder rod is equipped with a spherical end fitting (door side).

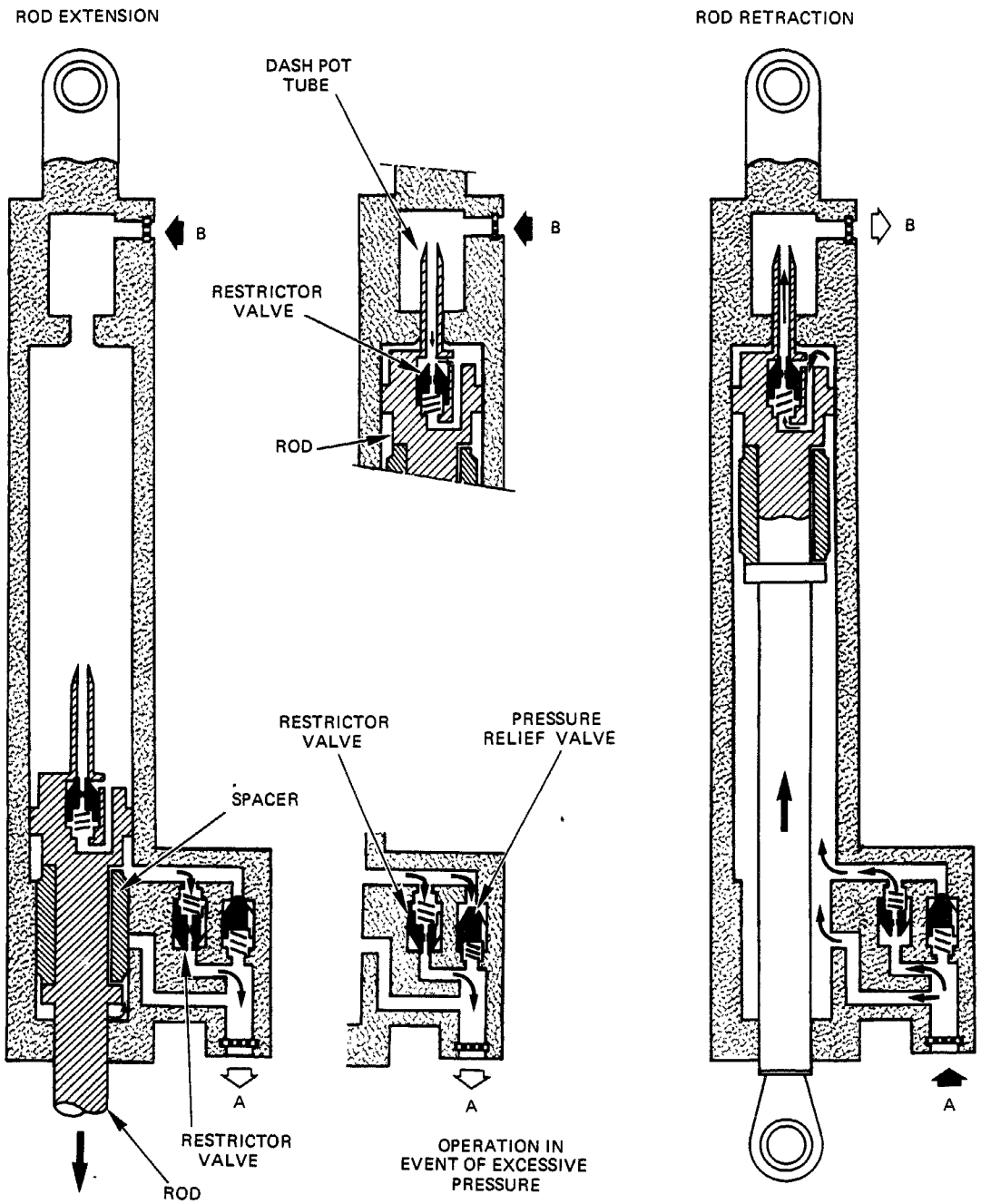
(f)The actuating cylinder body is equipped with a gimbal joint (structure side).

(3)characteristics

Drawing	PR 50791
Weight without fluid	6.4 Kg
Identification of hydraulic ports	A - Rod retraction B - Rod extension
Center-to-center distances with rod in stop position :	
- Rod extended :	1024 mm : gimbal joint
- Rod retracted :	824 mm : included
Maximum travel :	
- Stop-to-stop :	200 mm
- Effective stroke :	195 mm
Slow-down travel :	
- End of rod retraction cycle :	20 mm
- End of rod extension cycle :	20 mm
Operating surfaces :	
- Rod retraction	12.7 cm^2
- Rod extension	17.7 cm^2



Nose Gear Door Actuating Cylinder
Figure 031



Nose Gear Door Actuating Cylinder - Schematic
Figure 032

G. Gear Sequence Valves

(1)General (Ref. Fig. 033, 034)

(a)The gear sequence valves serve to control the supply of pressure to the gear lock release actuating cylinders and gear actuating cylinders depending on the position of the doors.

(b)There is one sequence valve per gear main door, i.e. a total of four sequence valves per aircraft. The slide valve of each sequence valve is connected by a linkage to the corresponding door.
The sequence valves are located near to the doors :
- On the center beam at the bottom of section 15 for the main gear
- In the nose gear well for the nose gear.

(c)The two nose gear sequence valves are identical. The main gear sequence valves are symmetrical and non-interchangeable.

(2)Operation

(a)Nose gear sequence valve (Ref. Fig. 035, 036, 037)

1 The two nose gear sequence valves are hydraulically connected in series.
When the two doors are closed the sequence valves connect the following to reservoir return :
- The nose gear actuating cylinder retraction chamber.
- The nose gear telescopic strut downlock release chamber.
- The nose gear uplock actuating cylinder release chamber.

2 When the two doors are open the sequence valves connect the nose gear actuating cylinder retraction chamber and nose gear telescopic strut downlock release chamber to the retraction supply system and the nose gear uplock actuating cylinder release chamber to the extension supply system.

3 In the door intermediate positions the sequence valves maintain the connections to reservoir return until both doors are sufficiently open for gear extension without fouling.

4 A system in the sequence valves is provided to ensure that, during door closure at the end of gear extension, the flow of fluid from the nose gear actuating cylinder retraction chamber to reservoir return, can occur without interruption.

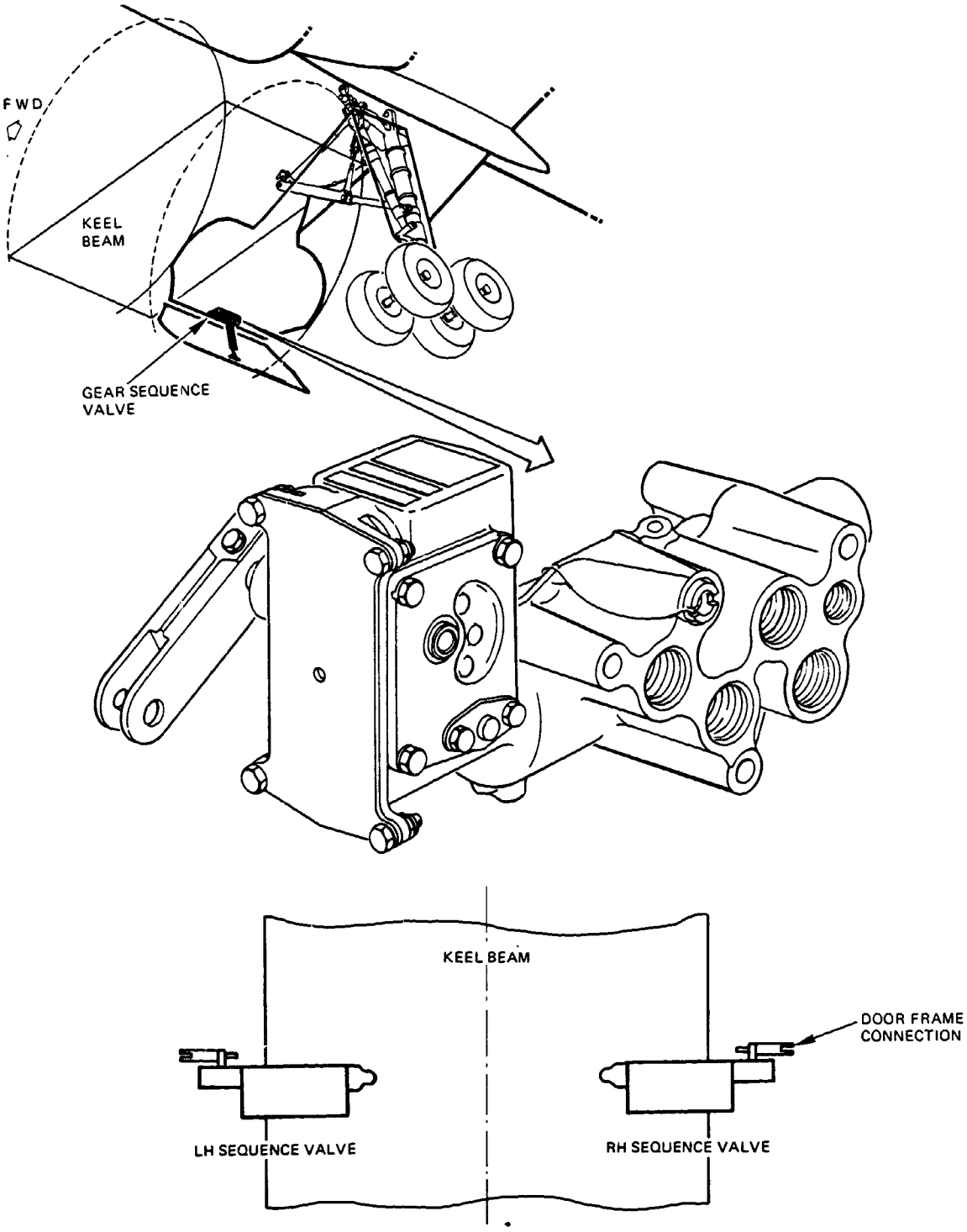
5 The system includes a check valve to ensure that this feature does not result in momentary internal leakage at the end of door opening during the gear retraction cycle.

6 A rigging hole is provided for locking the mechanical input lever in the door open position.

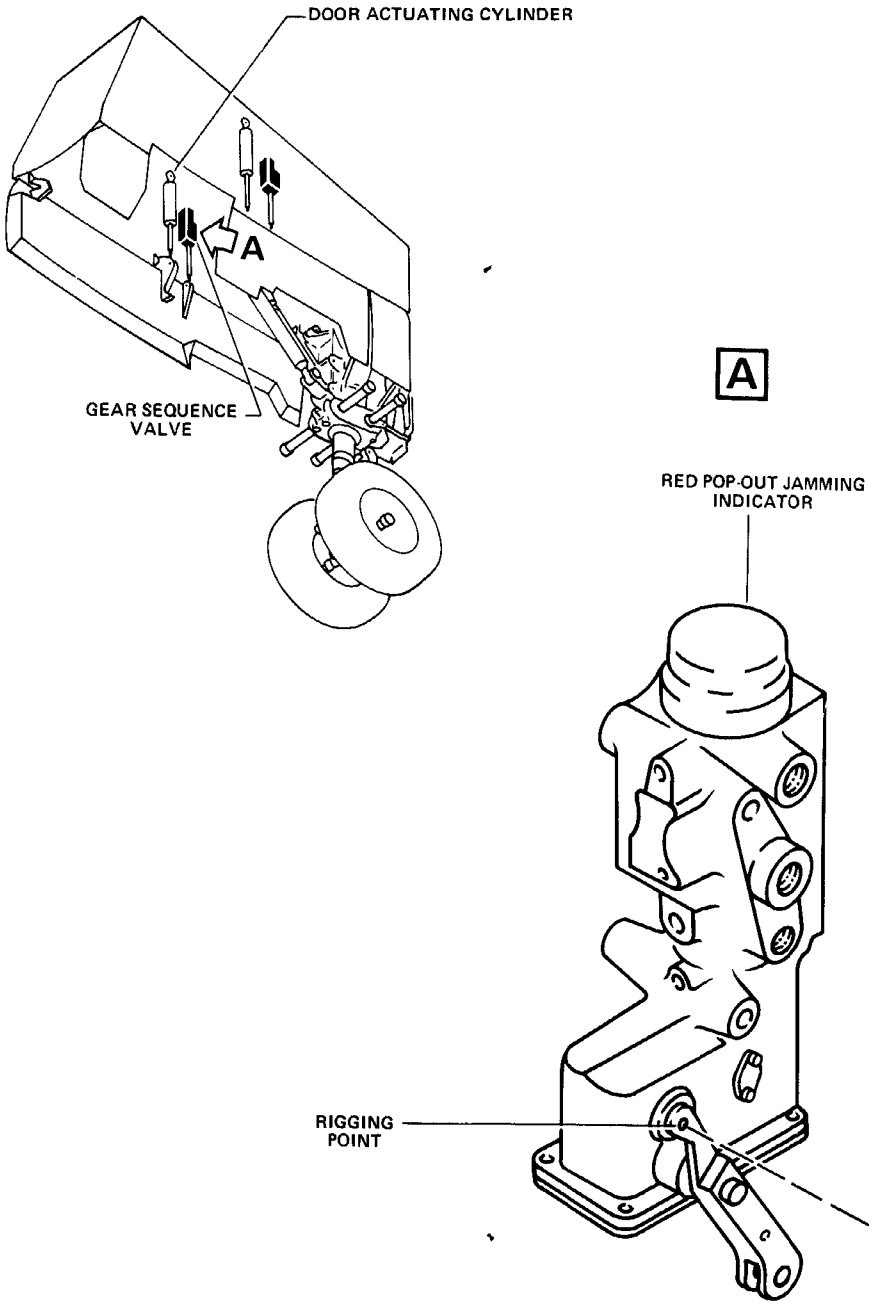
(b)Main gear sequence valve (Ref. Fig. 038, 039, 040)

1 The main gear sequence valves have the same features and functions with respect to each main gear and its door as those of the nose gear sequence valves described above.

2 The main gear sequence valves are not, however hydraulically connected in series, each sequence valve independently controlling the corresponding gear.



Main Gear Sequence Valve
Figure 033



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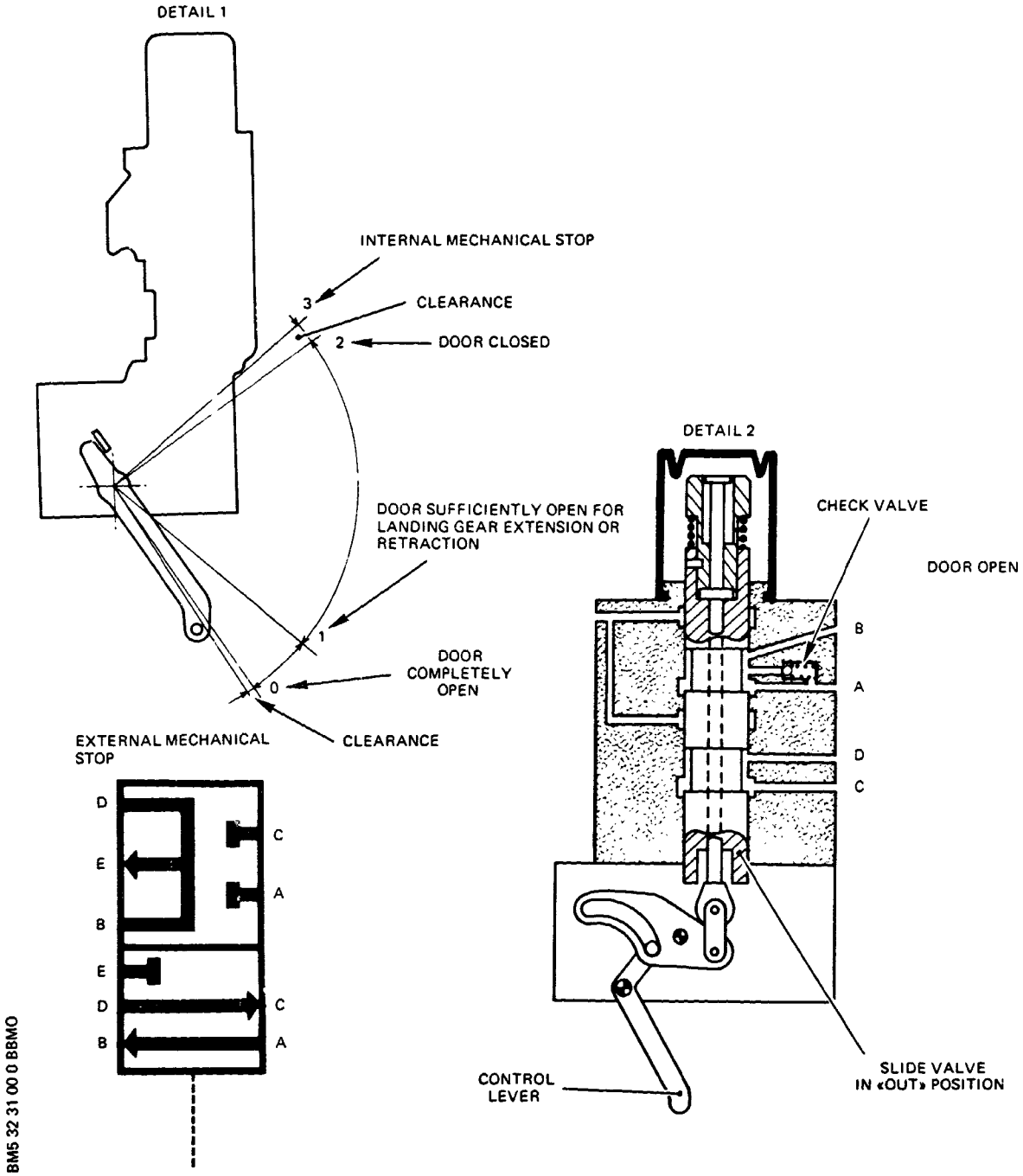
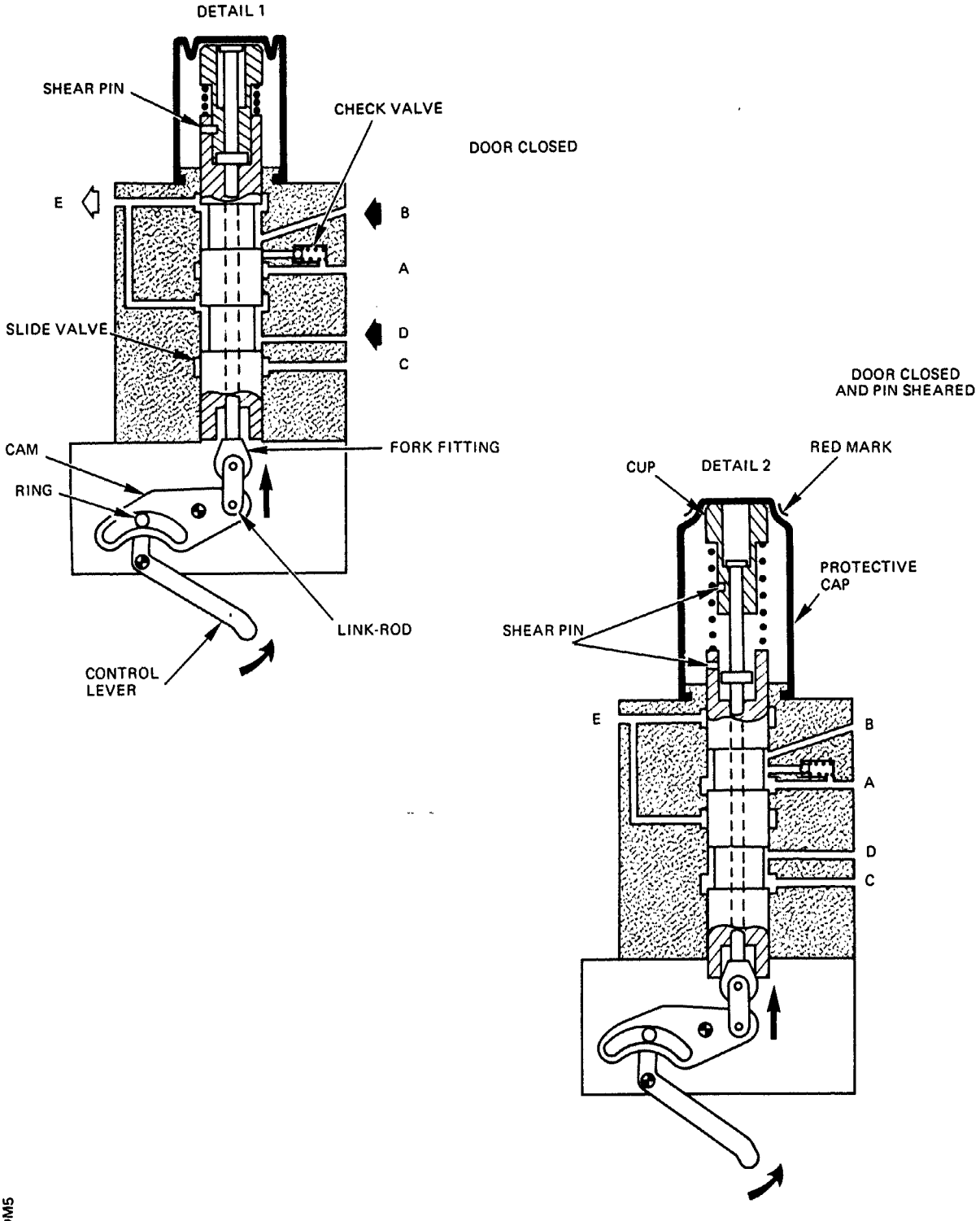
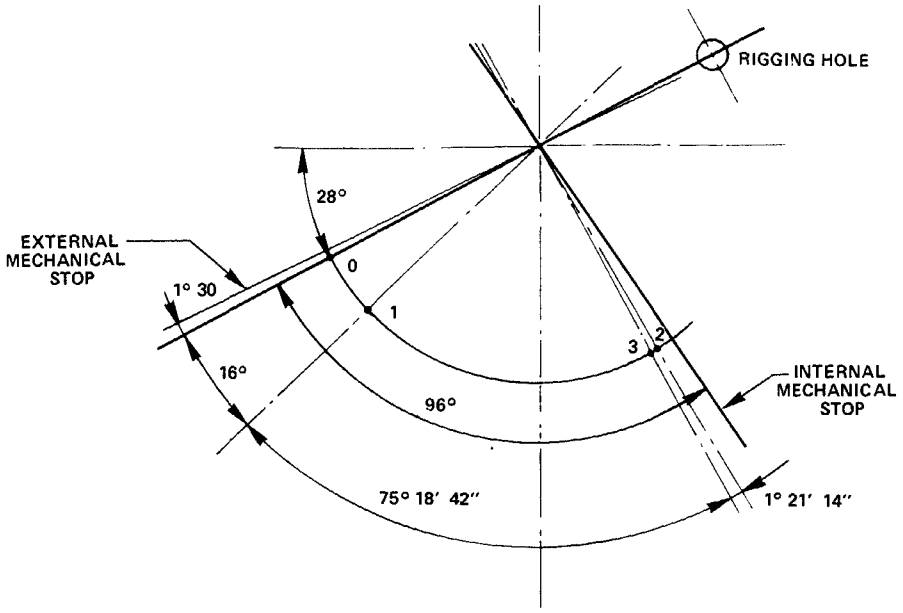
Nose Gear Sequence Valve
Figure 034



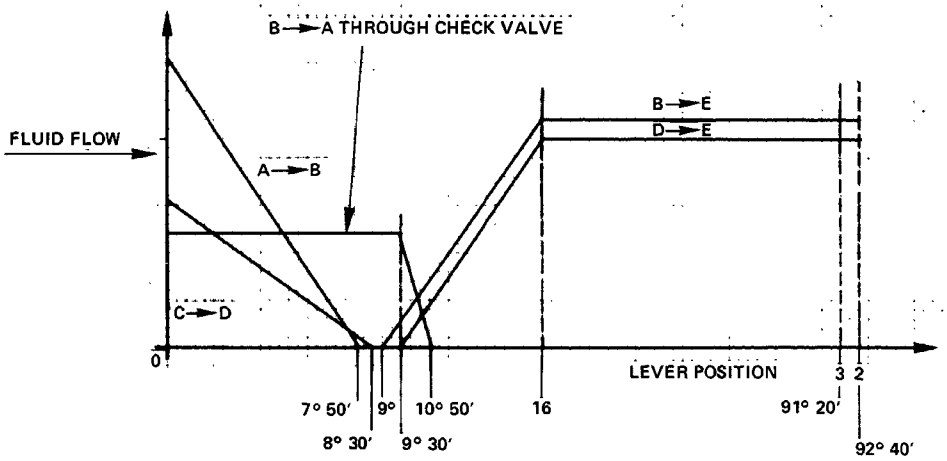
Nose Gear Sequence Valve - Schematic
Figure 035



Nose Gear Sequence Valve - Schematic
Figure 036



DIRECTION: POSITION 0 TOWARDS POSITION 3



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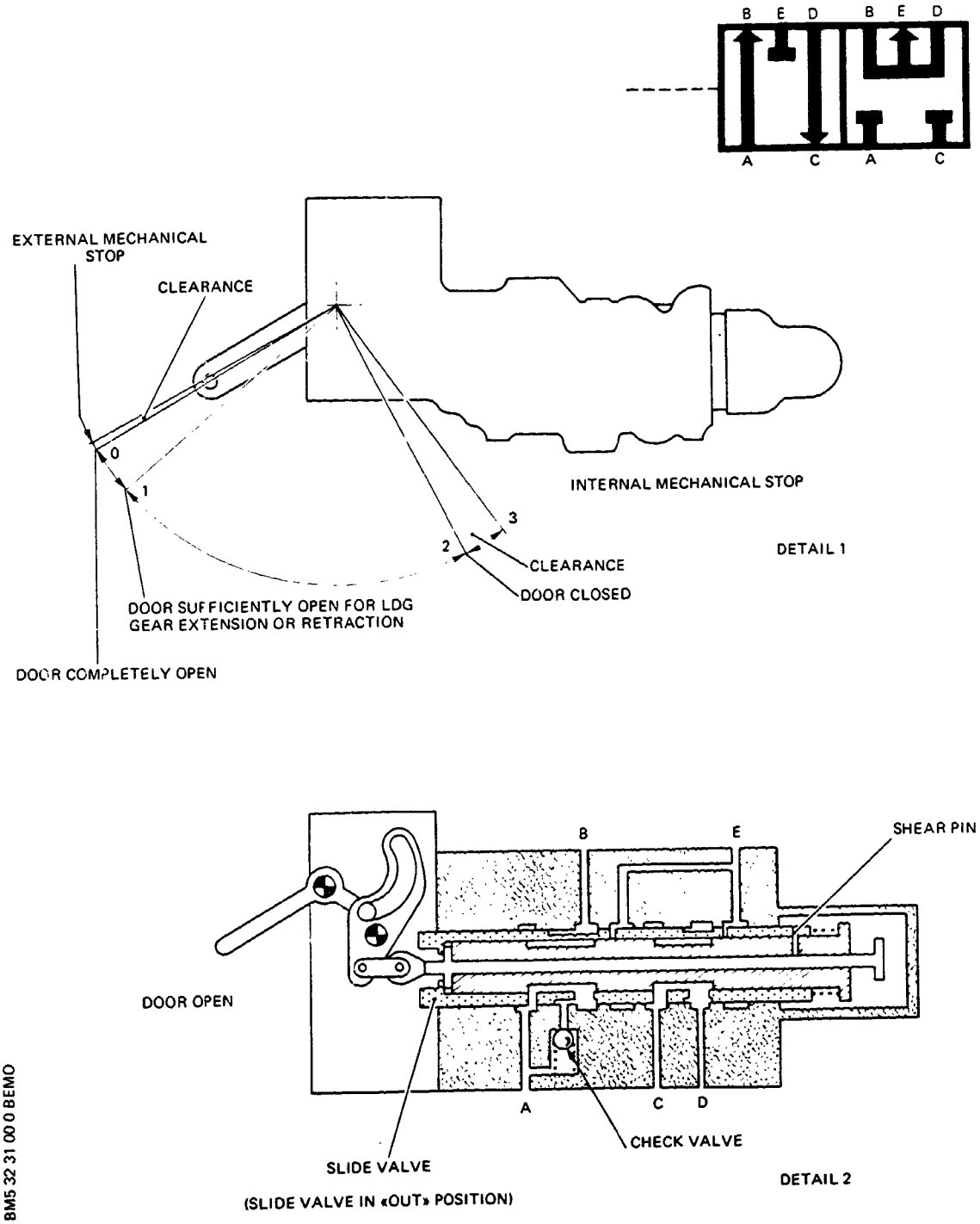
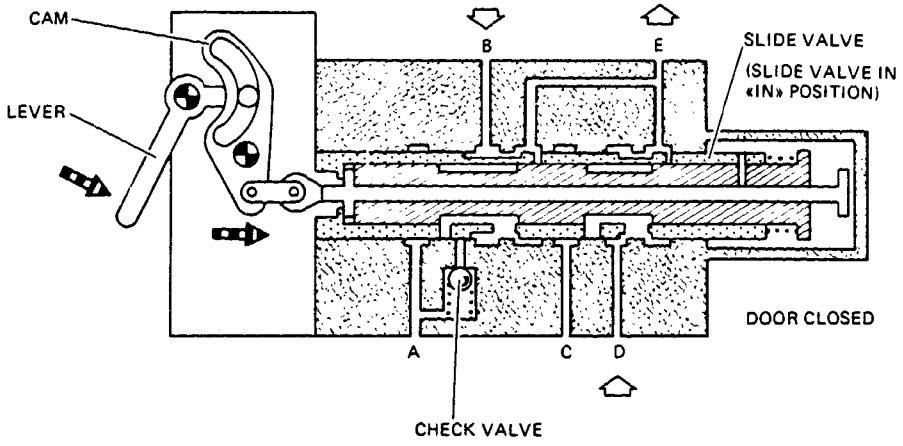
Nose Gear Sequence Valve - Flow Diagram
Figure 037

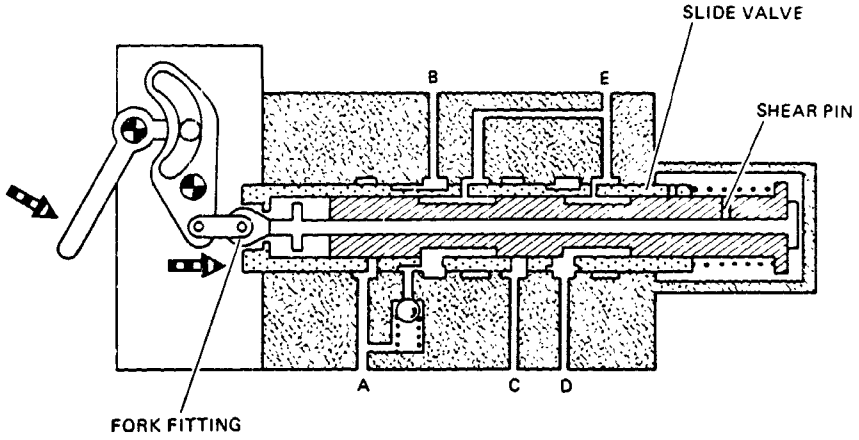


Main Gear Sequence Valve - Schematic
Figure 038

DETAIL 1



DETAIL 2



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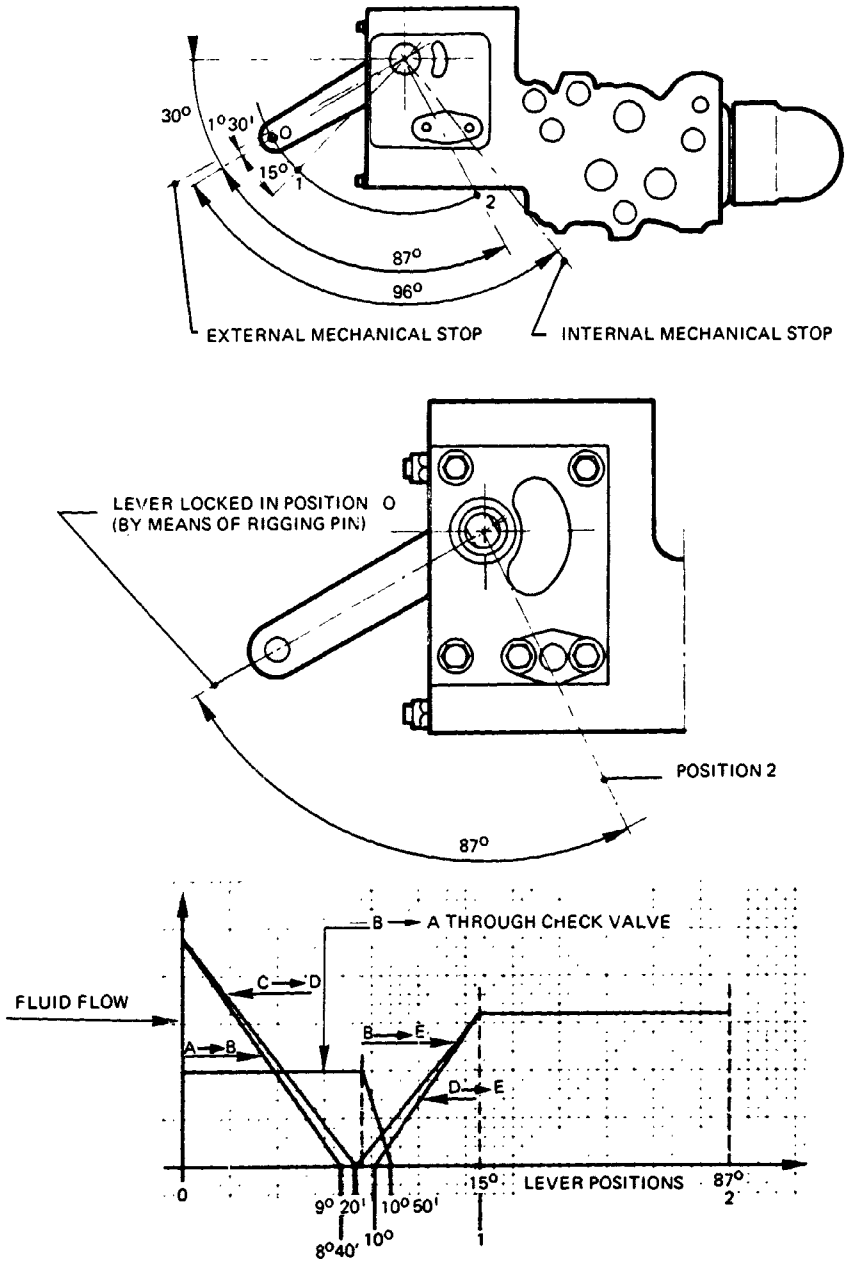
Main Gear Sequence Valve - Schematic
Figure 039



Main Gear Sequence Valve - Flow Diagram
Figure 040

(c)Precautions taken to cover the risk of slide valve jamming.
Jamming could occur with slide valve in either of two positions :
- Door closed position
- Door open position.

1 Jamming in door closed position
- In this configuration supply ports A and C are shut off, delivery ports B and D are connected to reservoir return.
- Hydraulic actuation of the landing gear concerned is therefore no longer possible after opening of the doors. If failure occurs with the gear uplocked, gear extension is achieved in Free Fall mode.
- The main gear sequence valves are equipped with a shear point which disconnects the door linkage from the jammed slide valve thus enabling the door to open without damaging the linkage.
- In this configuration, the shear point on the nose gear sequence valves does not operate and damage to the linkage can be expected.

2 Jamming in door open position
- In this configuration supply ports A and C are respectively connected to delivery ports B and D.
- Hydraulic supply to the landing gear is therefore possible.
- In the case of the nose gear, the fact that the two sequence valves are connected in series ensures correct control of hydraulic fluid supply.
- However, in the case of the main gear, the door and gear concerned are supplied simultaneously with risk of fouling between the gear and door during retraction.
- To eliminate this risk, the sequence valve includes an internal system, comprised of a shear point and secondary slide valve, which in the event of jamming, shuts off supply ports A and C thus preventing hydraulic actuation of the gear.
- In this configuration, the shear point on the nose gear sequence valves operates and frees the door linkage from the slide valve in the event of jamming. Jamming of the slide valve being in this case, a hidden failure (correct control of hydraulic pressure supply by the second sequence valve) a slide valve jamming indicator is provided at the end of slide valve.

(3)Characteristics

	Nose Gear Sequence Valve	Main Gear Sequence Valve
Drawing	PR 70271-1	PR 70279-1
Weight without fluid	2.400 Kg	3.575 Kg
Maximum operating moment at lever	0.8 m.daN	1 m.daN
Maximum moment for rupture at shear point :		
- slide valve jammed in door open position	13 m.daN	13 m.daN
- slide valve jammed in door closed position	-----	13 m.daN
Identification of hydraulic ports	A - Retraction pressure inlet B - Retraction service outlet C - Extension pressure inlet D - Extension service outlet E - Reservoir return	A - Retraction pressure inlet B - Retraction service outlet C - Extension pressure inlet D - Extension service outlet E - Reservoir return
Pressure drop from :		
A to B	For Q = 80 l/mn, ΔP ≤ 4 bars	For Q = 80 l/mn ΔP ≤ 9 bars
C to D	With restrictor at D for Q = 80 l/mn, ΔP ≤ 50 bars	
D to E	With restrictor at D for Q = 40 l/mn, ΔP ≤ 60 bars	For Q = 40 l/mn, Δ P ≤ 15 bars
B to E	For Q = 40 l/mn, ΔP ≤ 10 bars	For Q = 40 l/mn, ΔP ≤ 50 bars
Maximum internal leakage from :		
A to E with 210 bars at A	Q ≤ 300 cm^3/mn	Q ≤ 450 cm^3/mn
Maximum internal leakage from :		
C to E with 210 bars at A	Q ≤ 350 cm^3/mn	Q ≤ 450 cm^3/mn

H. Nose Gear Uplock Release Restrictor

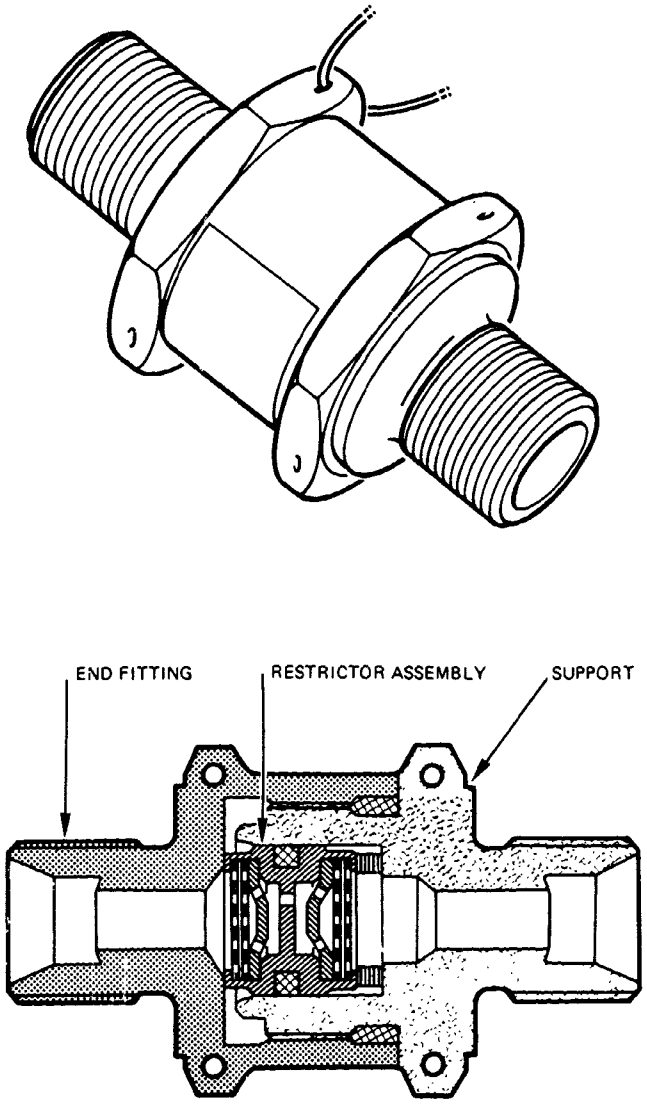
(1)General (Ref. Fig. 041)

The restrictor is installed in the nose gear RH sequence valve port D (Ref. paragraph 2.G.) i.e. in the nose gear uplock actuating cylinder supply line.

The restrictor serves to slow down displacement of the uplock release actuating cylinder piston.

(2)Characteristics

Drawing	PR 70474
Weight without fluid	0.060 Kg
Diameter of the restriction orifice	Dia. 0.4 mm
Pressure drop	ΔP = 50 bars for $500 \leq Q \leq 700$ cm³/mn



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Nose Gear Uplock Release Restrictor
Figure 041

J. Main Gear Actuating Cylinder

(1)General

(a)The 2 main gear actuating cylinders are identical

(b)Each actuating cylinder is of the double-acting type and comprises a counterrod,a variable damping system, which reduces pressure peaks and slows down travel at the end of rod retraction, and a floating piston.

(2)Description (Ref. Fig. 042)

(a)At the end of rod extension (gear extension) the floating piston bottoms in the cylinder and no longer moves with the rod.
Thus, in the event that door fails to close or on the ground with doors open for maintenance, the load on the gear is limited to the load resulting from the pressure on the annular surface of the rod.

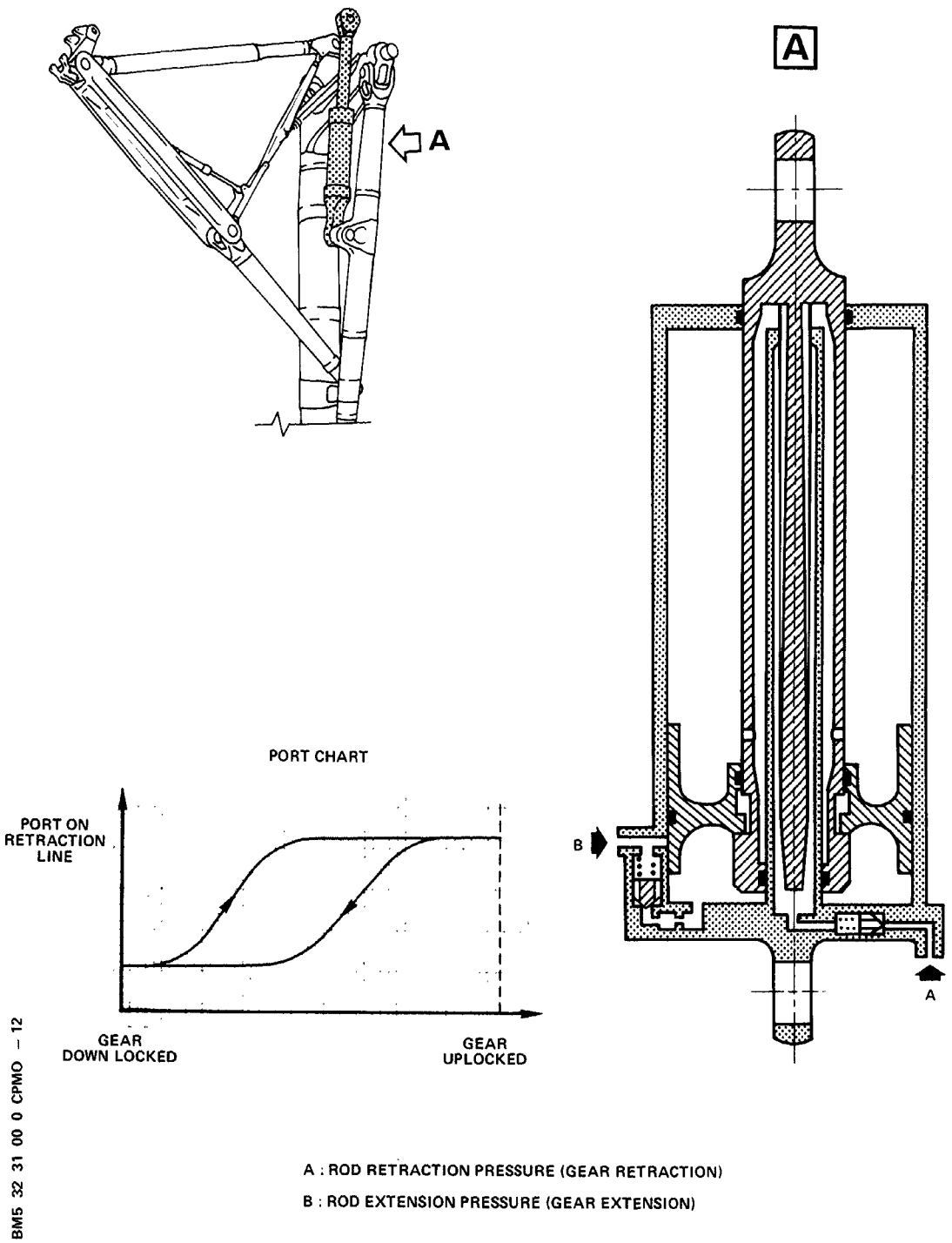
(b)A check valve, located upstream of the small orifice, restricts fluid flow at the end of the retraction cycle to prevent, during simultaneous pressurization of uplock release and gear extension supply lines, full travel displacement of the floating piston prior to gear uplock release as this would result in a severe hydraulic shock in the actuating cylinder retraction chamber (gear free fall equivalent to actuating cylinder rod travel of approximately 1 cm).

(c)In gear uplocked and downlocked positions, end of travel clearance is provided in the actuating cylinder and the rod does not bottom.

(d)The rod end fitting is integral with the rod and not adjustable. This is possible because of the floating piston which frees from the rod at the end of the gear extension cycle. Both the cylinder rod and body are equipped with a spherical end fitting.

(3)Characteristics

Drawing	PD 22147000
Weight without fluid	
Identification of hydraulic ports	A : Rod retraction B : Rod extension
Center-to-center distances :	- Rod extended - Rod retracted
Maximum travel :	- Stop-to-stop - effective stroke



A : ROD RETRACTION PRESSURE (GEAR RETRACTION)

B : ROD EXTENSION PRESSURE (GEAR EXTENSION)

Main Gear Actuating Cylinder - Schematic
Figure 042

K. Nose Gear Actuating Cylinder

(1)General (Ref. Fig. 043)

The nose gear actuating cylinder is of the double-acting type and includes a counterrod and an end-of-travel damping system.

(2)Description

(Ref. Fig. 044)

(a)Slowdown is achieved by expelling fluid from the rod extension chamber (gear extension chamber) through a small-dimension orifice.

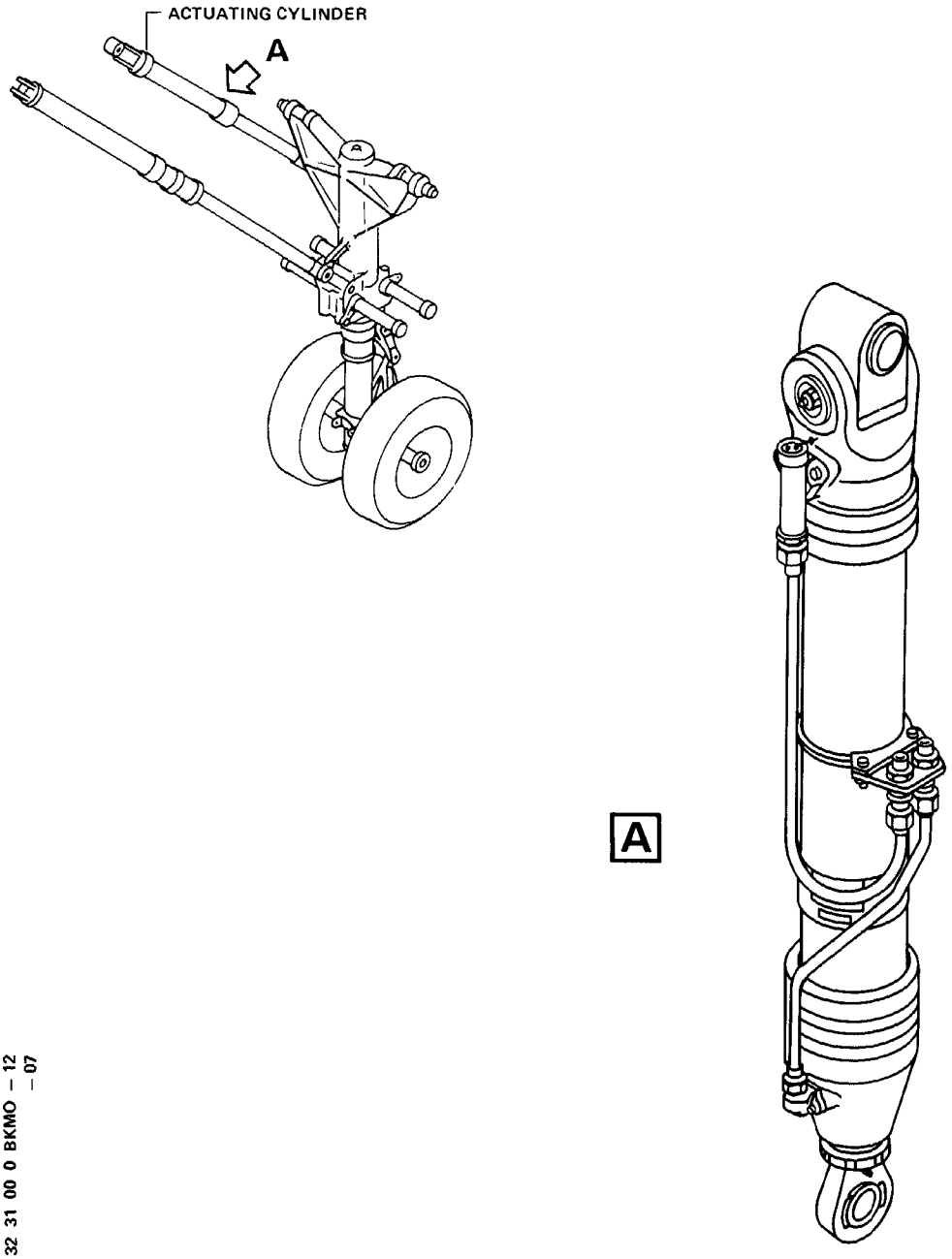
(b)The small-dimension orifice is included in the pressure relief valve which allows fluid to be expelled in the event of overpressure condition in the restricted chamber.

(c)No internal locking system is provided in the actuating cylinder. Nose gear downlocking is achieved by means of a telescopic strut.

(d)In the gear downlocked or uplocked position end-of-travel clearance is provided and the rod does not bottom.

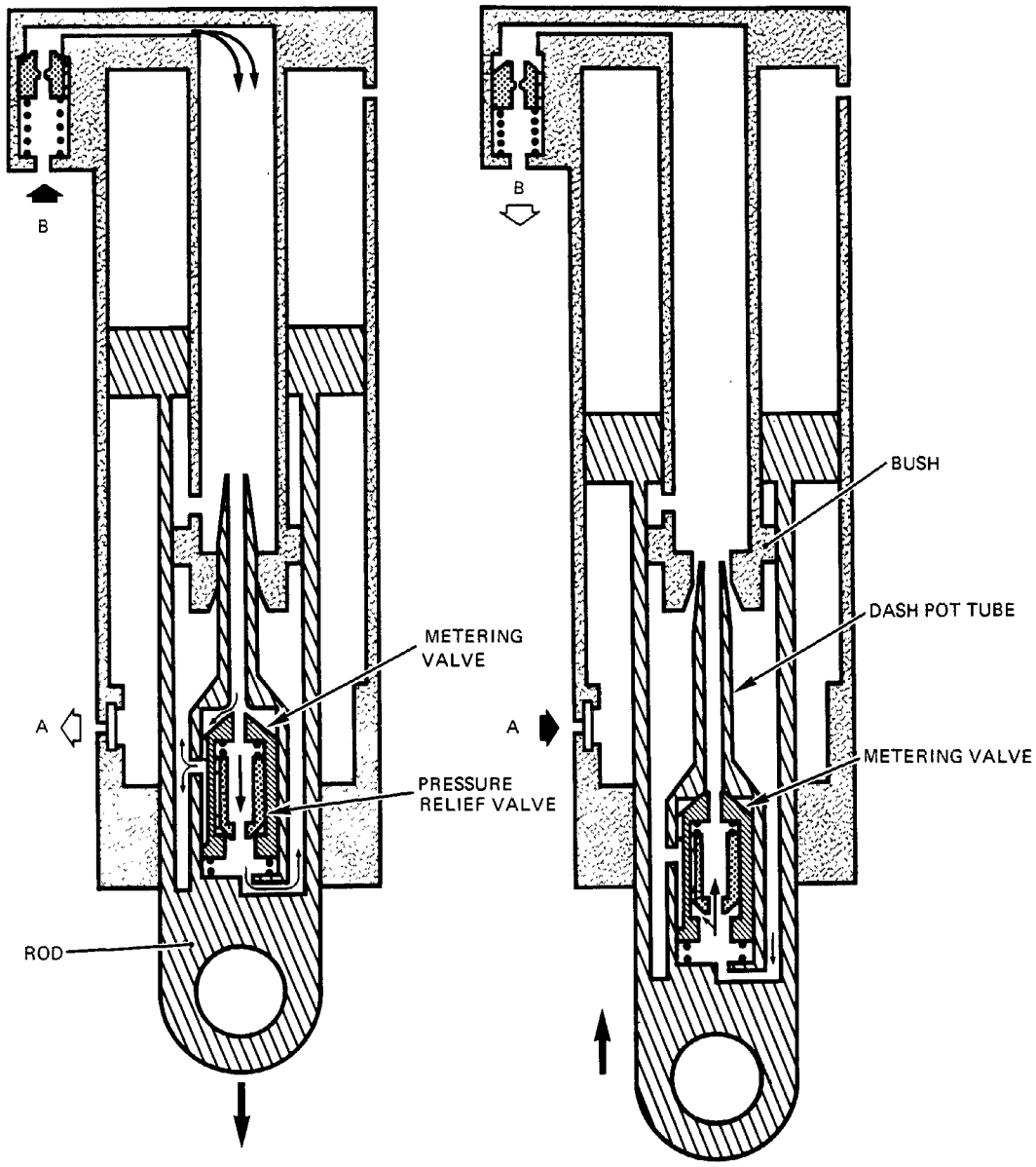
(e)The actuating cylinder rod is equipped with a spherical end fitting (gear side).

(f)The actuating cylinder body is equipped with a gimbal joint.



BM5 32 31 00 0 BKMO – 12
– 07
DM5

Nose Gear Actuating Cylinder
Figure 043



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Nose Gear Actuating Cylinder - Shematic
Figure 044

(3)Characteristics

Drawing	PR 50779-1
Weight without fluid	31.5 Kg
Identification of hydraulic ports	A - Rod retraction B - Rod extension
Center-to-center distances - Rod extended - Rod retracted	 163.9 cm 107.5 cm
Maximum travel Stop-to-stop Effective stroke	 56.4 cm 54.4 cm
Slow-down travel - End of rod retraction cycle - End of rod extension cycle	 3 cm 3 cm
Operating surfaces - Rod retraction - Rod extension	 50.4 cm^2 10.4 cm^2

L. Main Gear Brace Strut Actuating Cylinder

(1)General

(Ref. Fig. 045)

(a)The brace strut actuating cylinder performs the following functions.

1 Assists gear downlocking at the end of the extension cycle by pushing the lock link assembly over-center.

2 Enables gear retraction by bringing the lock link assembly back over-center at the beginning of the retraction cycle.

(b)The actuating cylinder is pressurized by the landing gear extension and retraction system

- rod extension : extension system
- rod retraction : retraction system

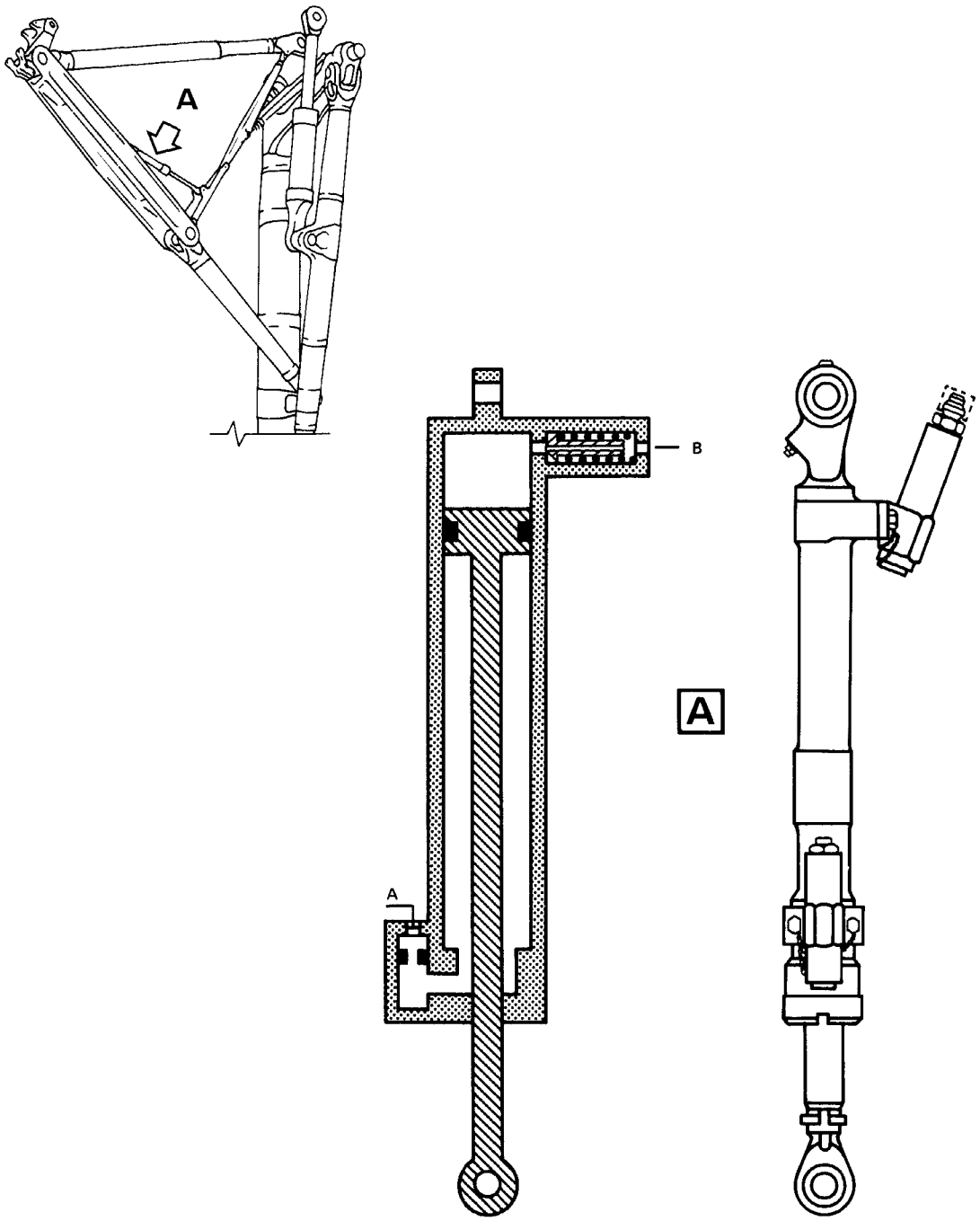
(2)Description

(a)During landing gear extension the actuating cylinder hydraulic supply passes through a restrictor valve so as to maintain the pressure in the extension chamber at the limit of cavitation. The expelled fluid passes through a restrictor. This prevents excessive shocks in the actuating cylinder at the end of the extension cycle.

(b)At the end of landing gear extension, the nominal pressure is established in the actuating cylinder and serves to push the lock link assembly over-center.

(c)During landing gear retraction, the actuating cylinder hydraulic supply is restricted to prevent abrupt rod displacement.

(d)At the end of the landing gear extension cycle, pressure is maintained in the brace strut actuating cylinder (control lever in DOWN position).



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Brace Strut Actuating Cylinder
Figure 045

(3)Characteristics

Drawing	PD 22137000
Weight without fluid	TBA
Identification of hydraulic ports	A - Rod retraction B - Rod extension
Center-to-center distances - Rod retracted - Rod extended	 545 mm 770 mm
Maximum travel	225 mm
Operating surfaces Rod retraction : Rod extension :	 3.56 cm^2 8.62 cm^2

M. Nose Gear Telescopic Strut

(1)General (Ref. Fig. 046)

The nose gear telescopic strut provides fore and aft bracing of the nose gear in the downlocked position. This is a passively actuated strut with an inside locking/unlocking system.

(2)Description (Ref. Fig. 047, 049)

**ON A/C 105-200,

Post SB 32-2068 For A/C 105-200,

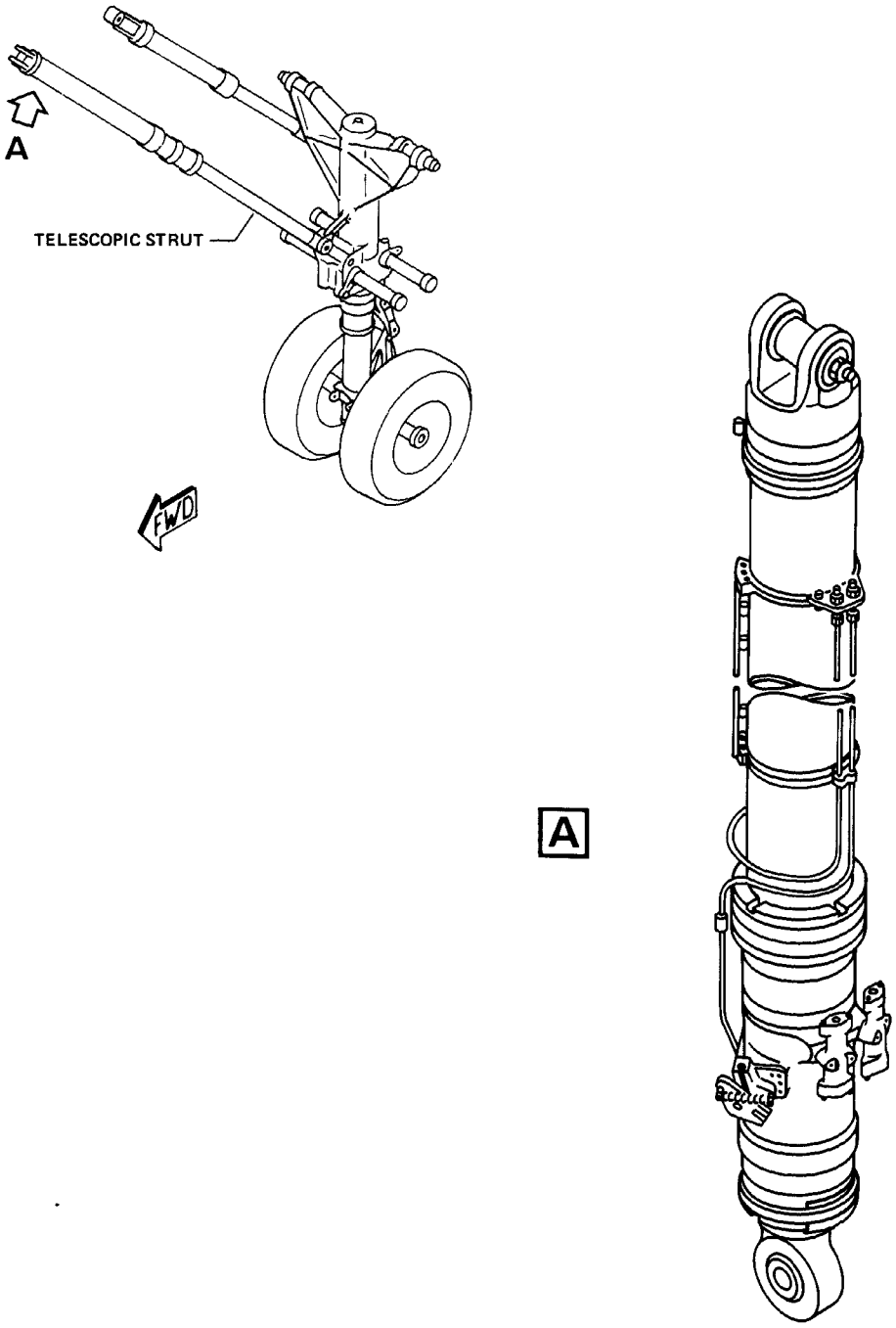
(2)Description (Ref. Fig. 048, 050)

**ON A/C ALL

(a)Mechanical locking of the drag strut is achieved by locking dogs.
(b)Downlock release is achieved hydraulically by action on a locking sleeve which frees the locking dogs.
(c)During gear extension the locking sleeve is repositioned hydraulically.
(d)At the end of rod extension a microswitch indicates that the drag strut is downlocked. A visual indicator (mechanical) also appears when the strut is downlocked.
(e)A mechanical system is provided for immobilizing the locking sleeve on the ground by insertion of a safety pin. During this operation and especially after a landing gear Free Fall extension with the aircraft on jacks it is imperative to make certain that the drag strut is positively downlocked as installation of the safety pin is also possible when the strut is not downlocked.

(3)Characteristics

Drawing	PR 50785
Weight without fluid	80 Kg
Identification of hydraulic ports	A - Downlock release B - Repositioning of locking sleeve
Center-to-center distances - Rod extended - Rod retracted	 2775.5 mm 1694.5 mm
Stop-to-stop travel	1081 mm
Downlock release pressure	70 bars approx.



BM5 32 31 00 0 BNMO – 12 – 07
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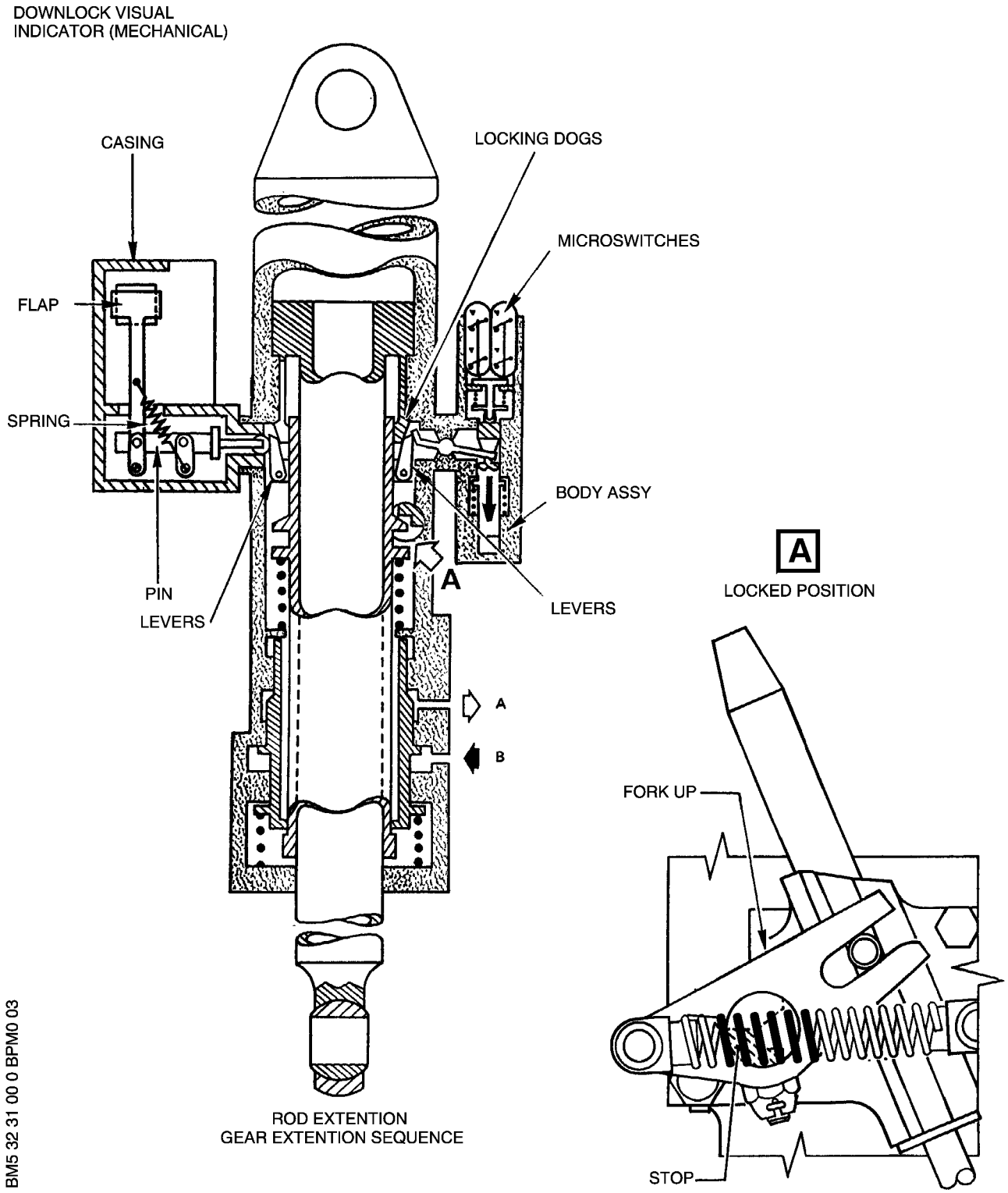
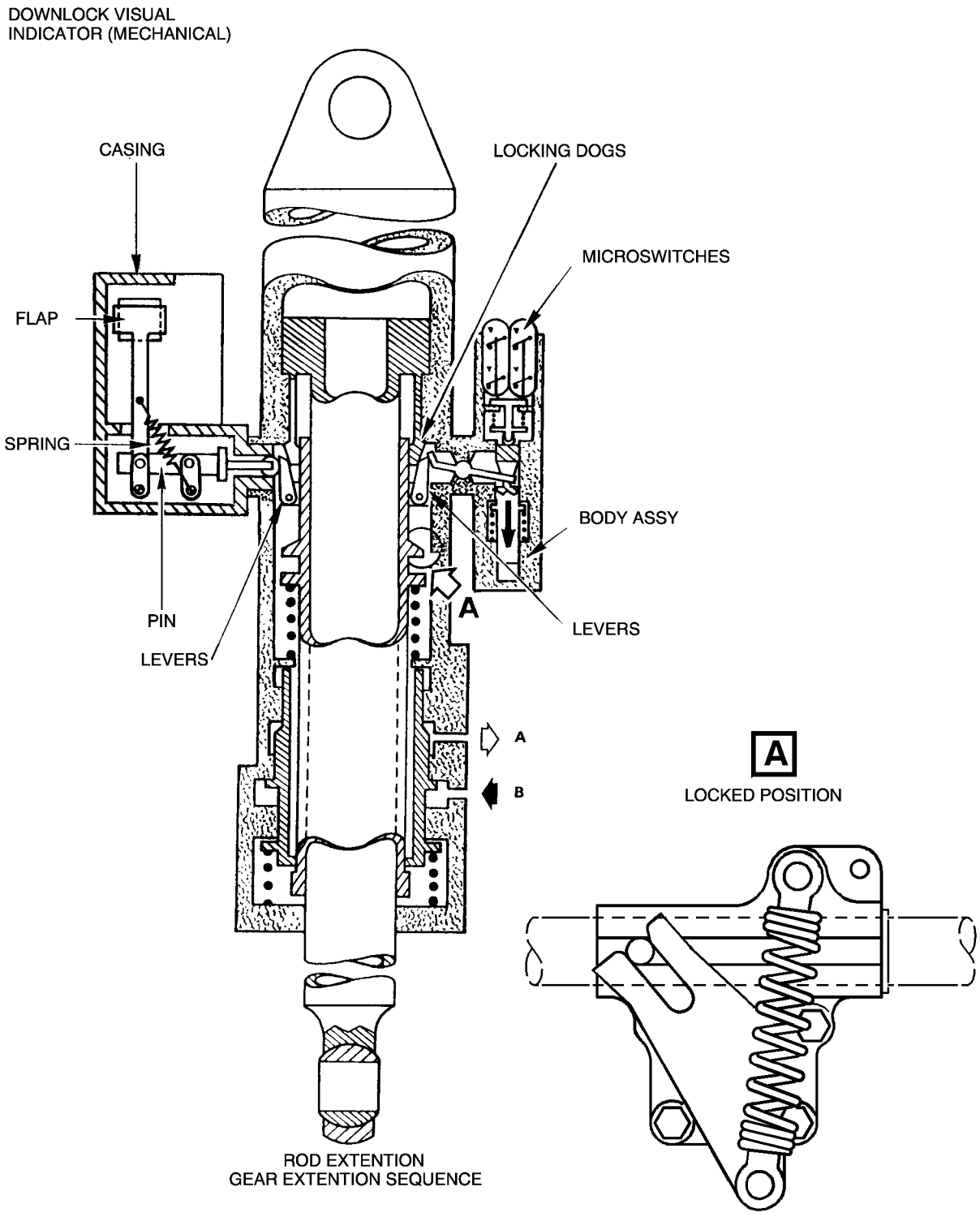
Nose Gear Telescopic Strut
Figure 046



Nose Gear Telescopic Strut - Schematic
Figure 047

R



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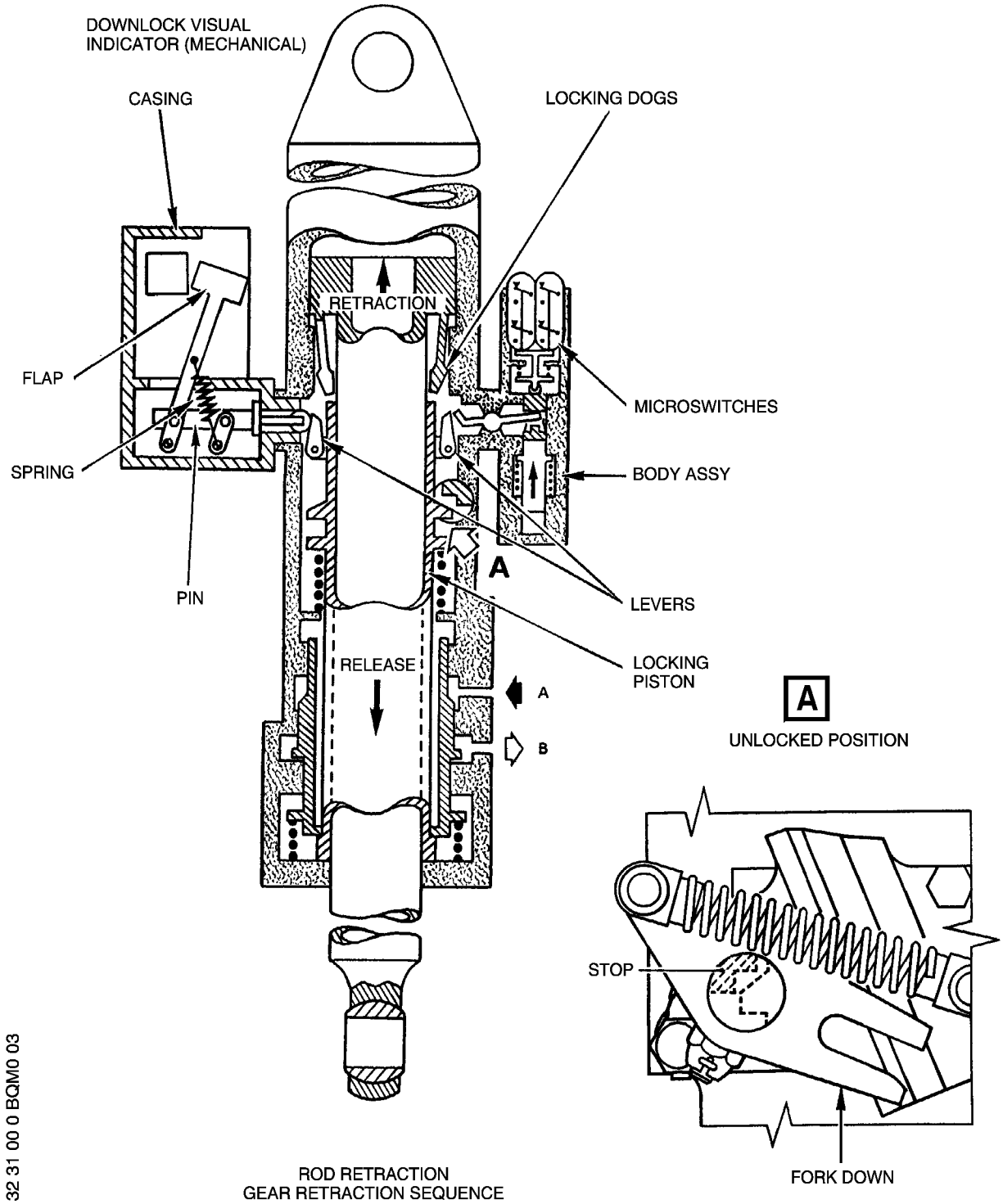
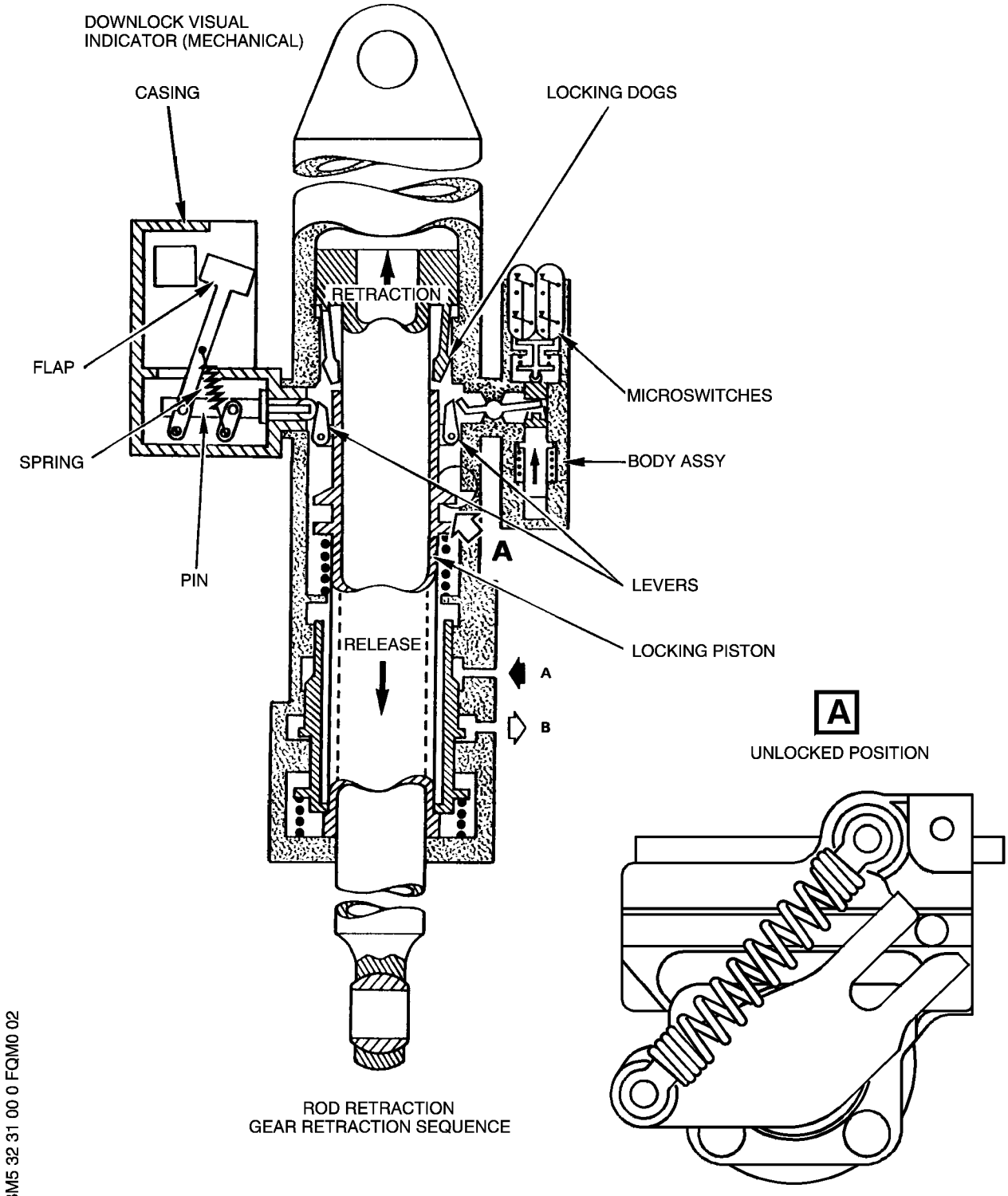
Nose Gear Telescopic Strut - Schematic
Figure 048

R



Nose Gear Telescopic Strut - Schematic
Figure 049

R



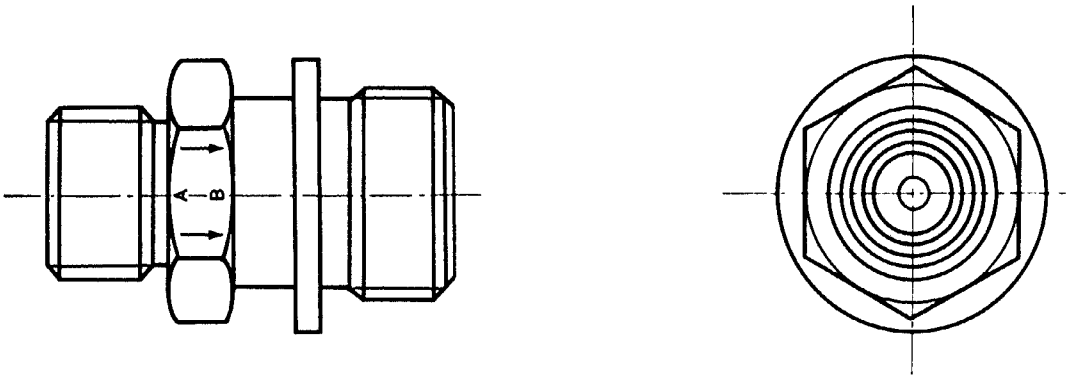
Nose Gear Telescopic Strut - Schematic
Figure 050

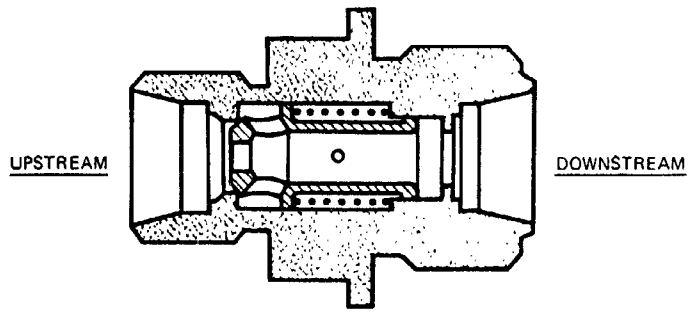
R

N. Main Gear Restrictor Valves (in the hydraulic supply lines)
(1)General (Ref. Fig. 051)
There are two restrictor valves ; one per main gear hydraulic system. The restrictor valves are located in section 15 at FR54.
(2)Purpose
Each restrictor valve is installed in the supply line to the gear uplock release actuating cylinder and gear actuating cylinder extension chamber and performs 3 main functions :
(a)Maintain a pressure at the limit of cavitation in the main gear actuating cylinder extension chamber to limit the shock in the actuating cylinder at the end of the gear extension cycle.
(b)Prevent back pressure to the gear uplock release chamber after gear uplocking.
(c)Slow down the speed of displacement of the gear uplock release actuating cylinder piston.

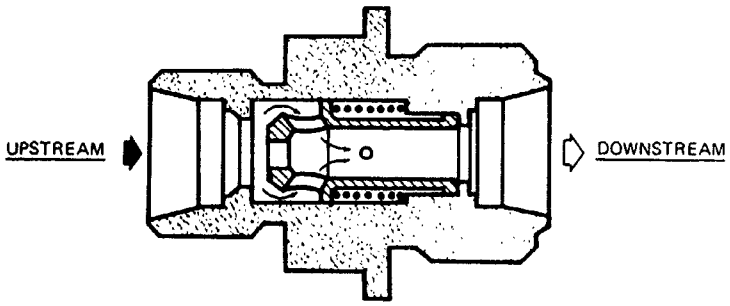
4. Normal Operation
(Ref. Fig. 052, 053, 054)
(Ref. Fig. 055, 056, 057)
(Ref. Fig. 058, 059, 060)
The landing gear Normal control system is of the hydro-mechanical type and performs the operations below in the following sequence :
- Door uplock release and door opening
- Gear lock release and gear extension or retraction
- Door closing

Hydraulic power is supplied by the Green hydraulic system.
The landing gear extension and retraction system includes actuating cylinders, sequence valves, uplocks and mechanical linkages. The linkages enable the moving parts (gear and doors) to control the sequence valves at the end of the various cycles to achieve correctly sequenced operation.





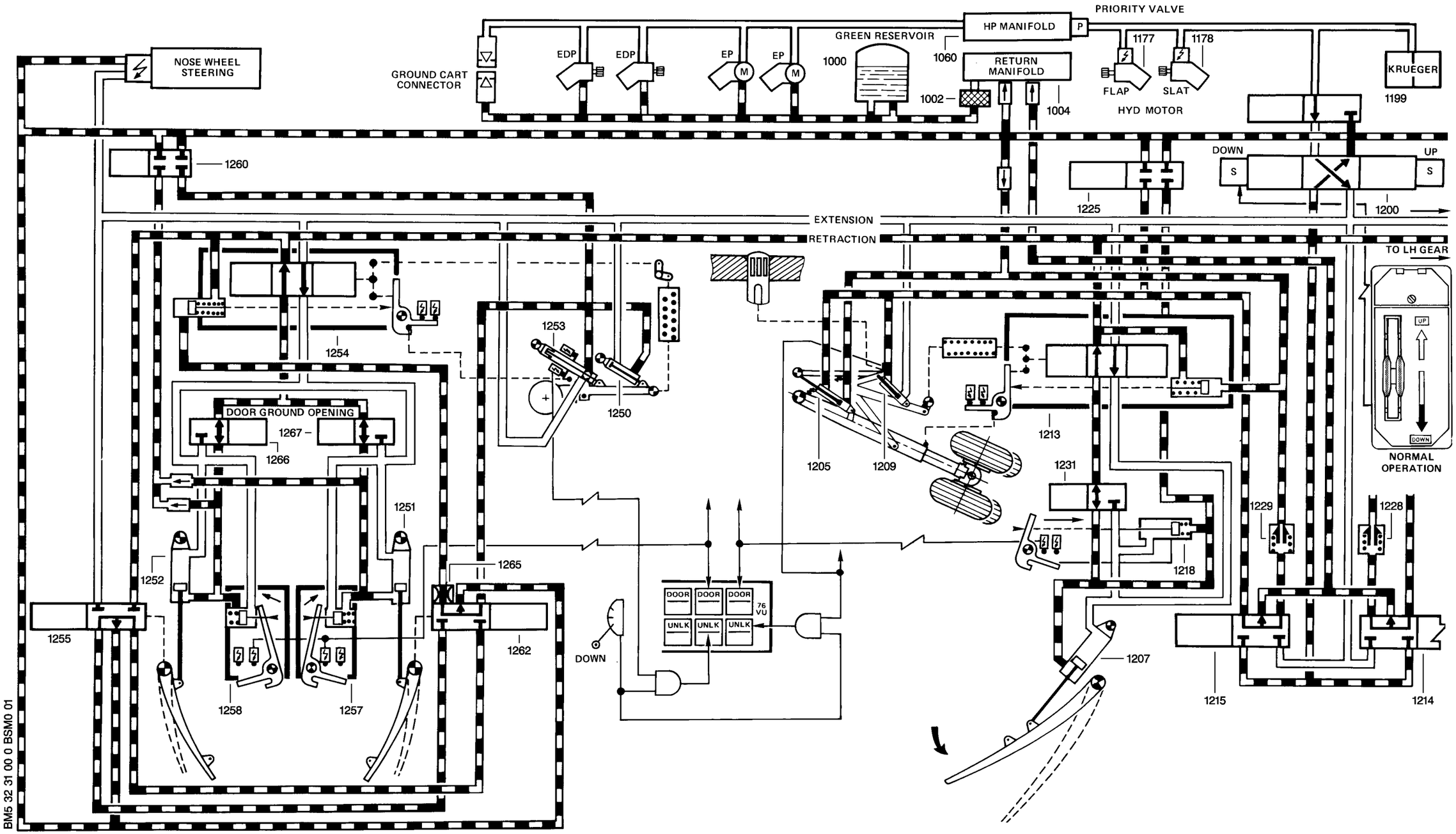
OPERATION



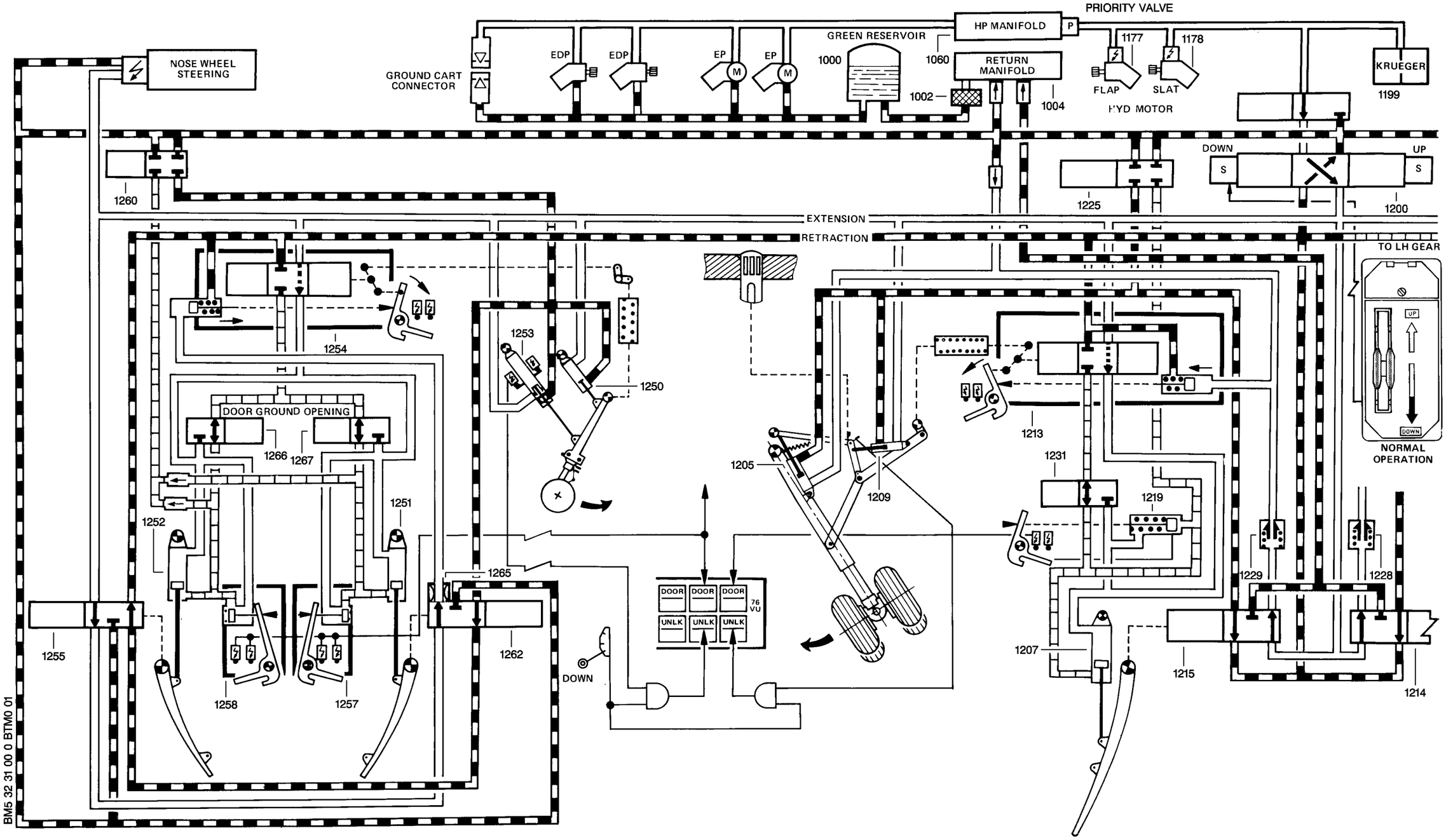
RESTRICTOR VALVE
1228
(1229)

BM5 32 31 00 0 BRMO – 13

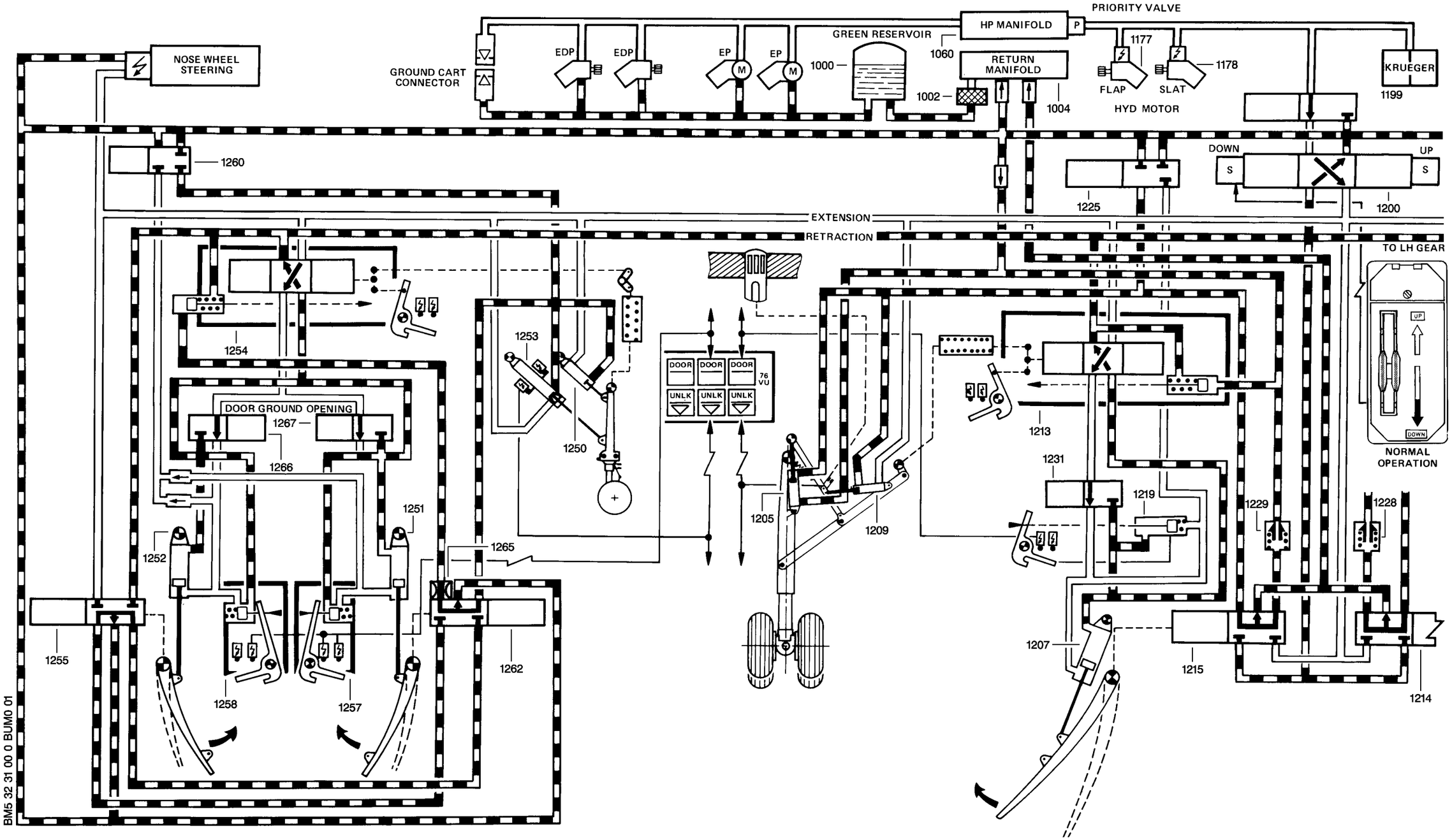
Main Gear Restrictor Valve
Figure 051



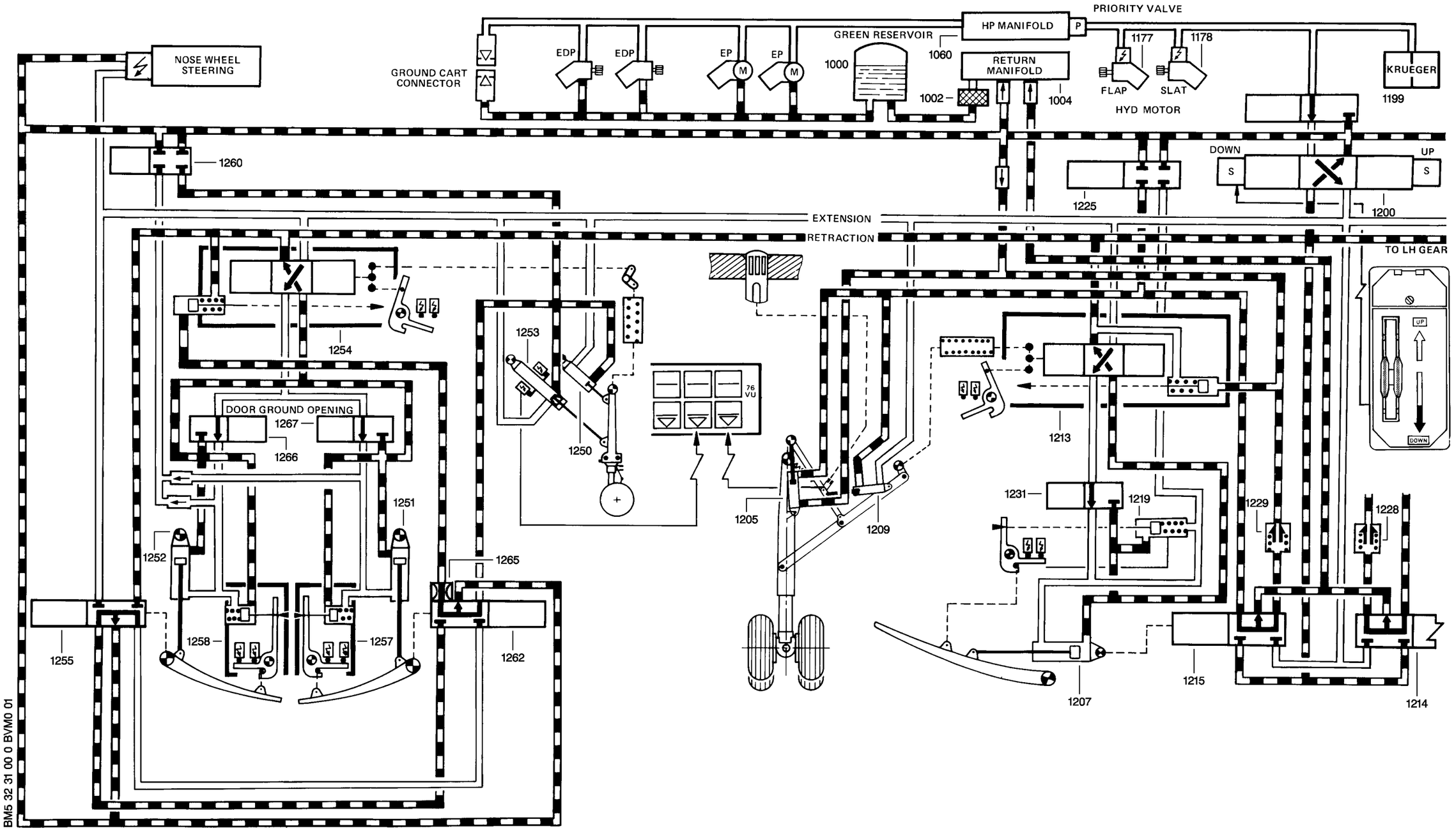
Extension - Gear Uplocked - Doors Opening
Figure 052



Extension - Gear Extending
Figure 053

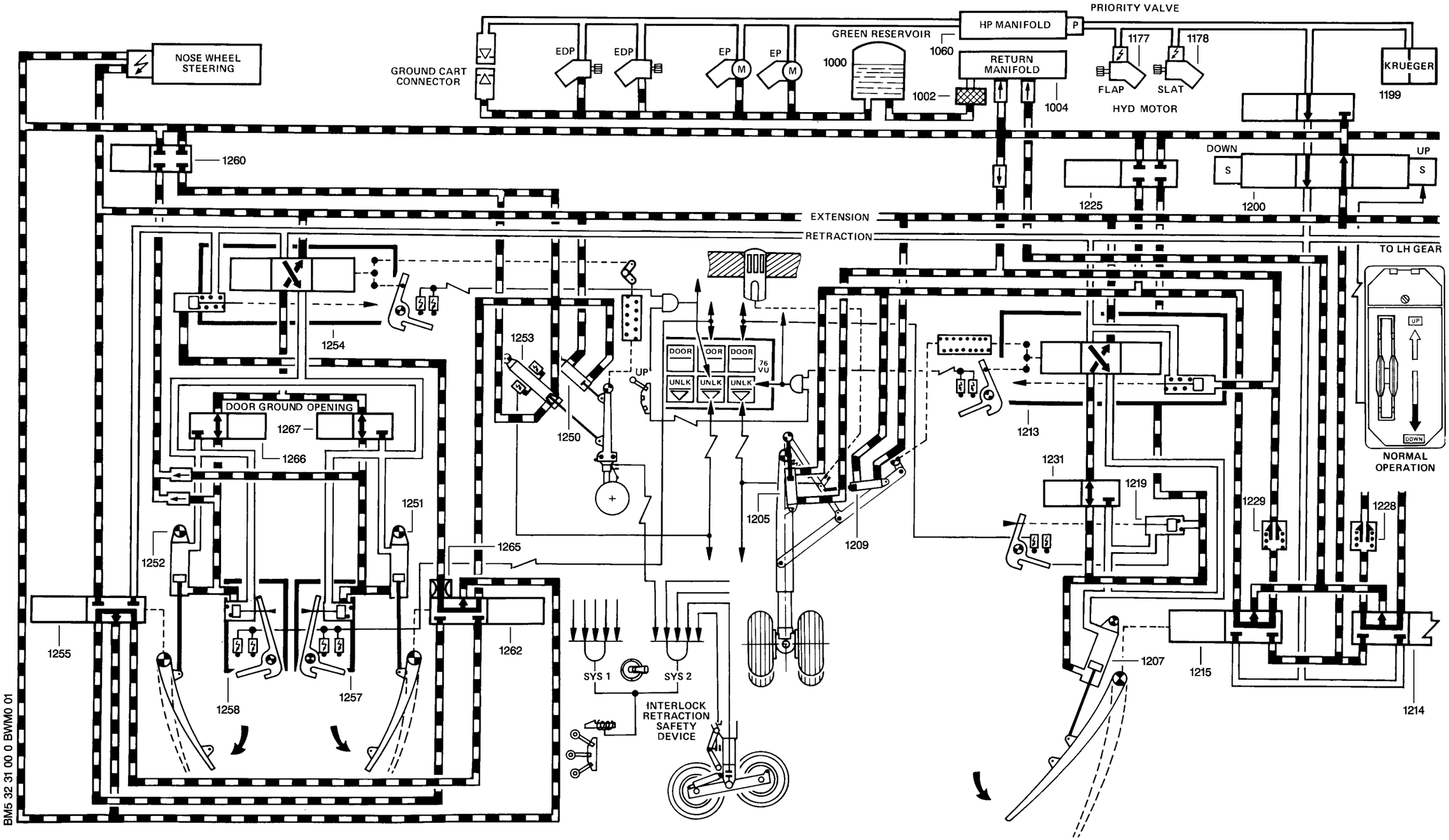


Extension - Gear Downlocked - Doors Closing
Figure 054

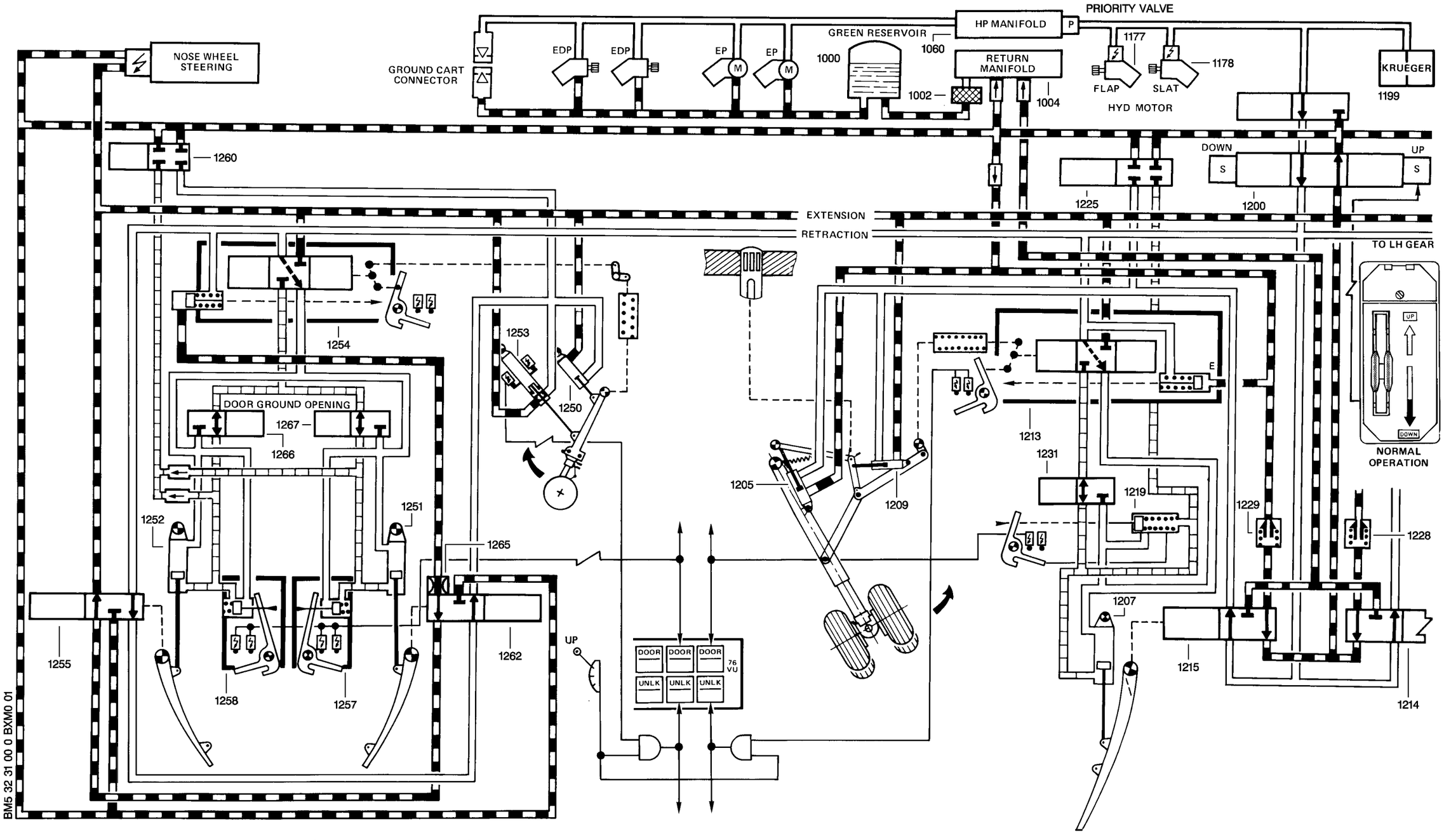


BM5 32 31 00 0 BVM0 01

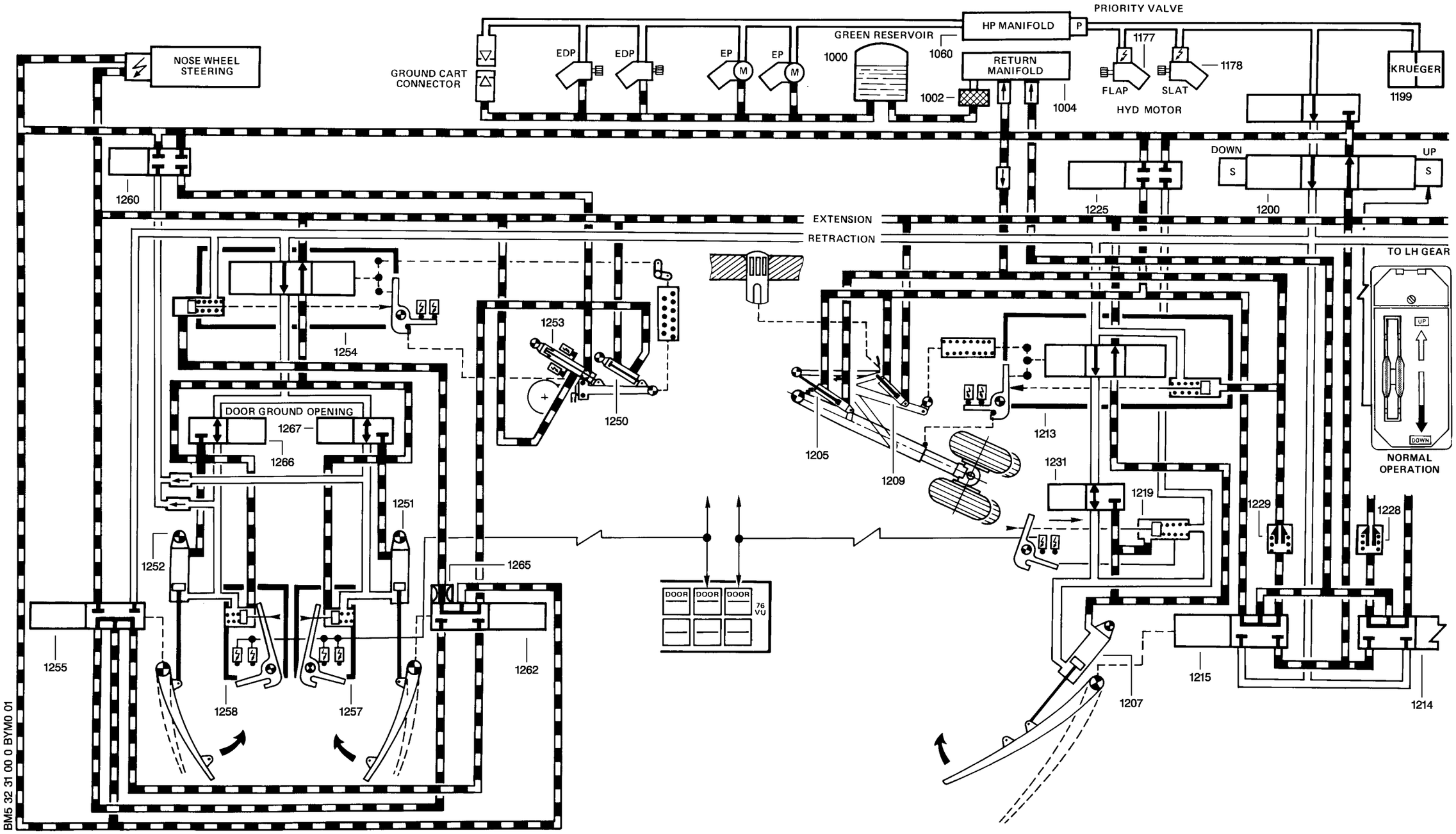
Extension - Gear Downlocked - Doors Closed
Figure 055



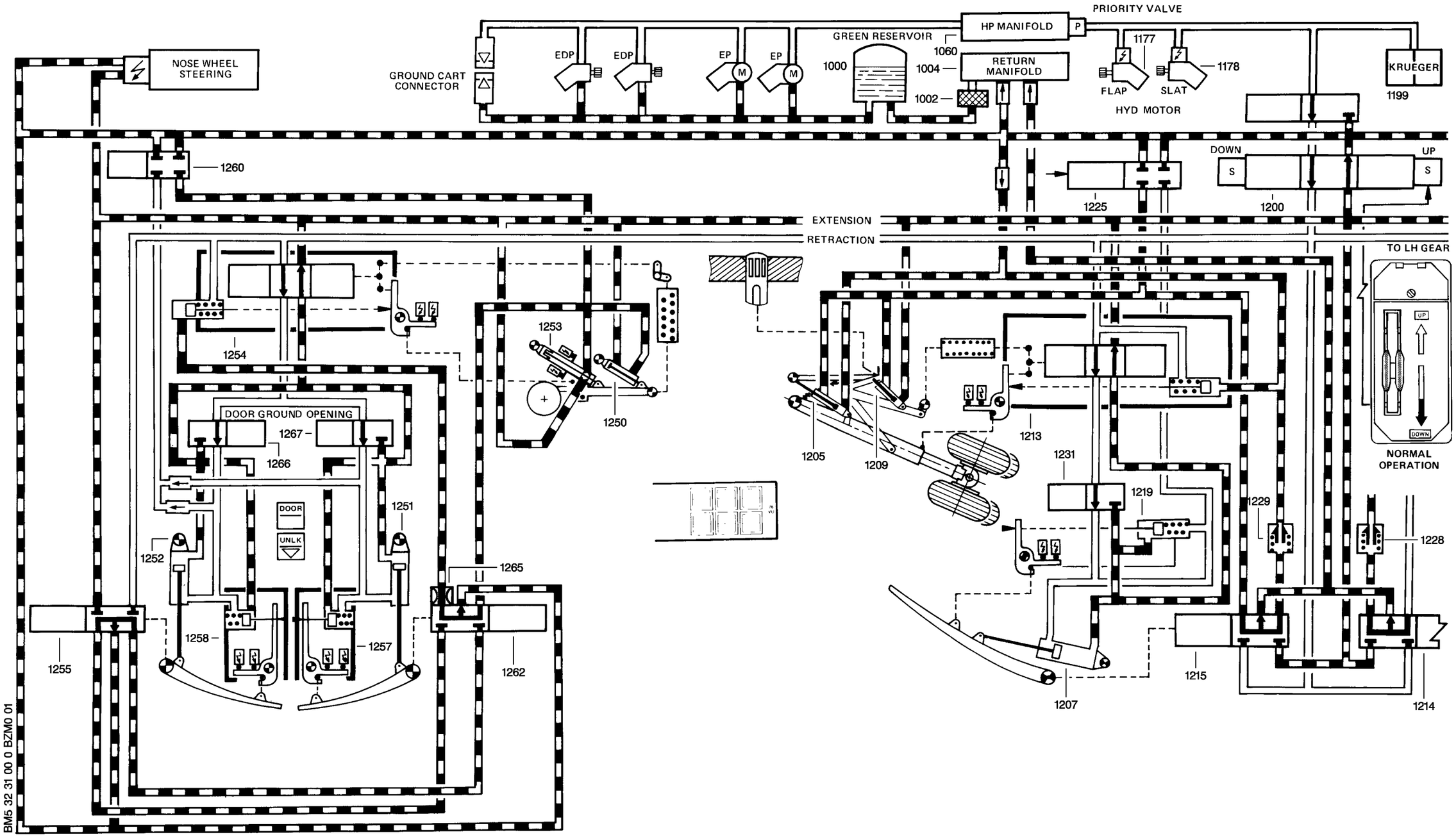
Retraction - Gear Downlocked - Doors Opening
Figure 056



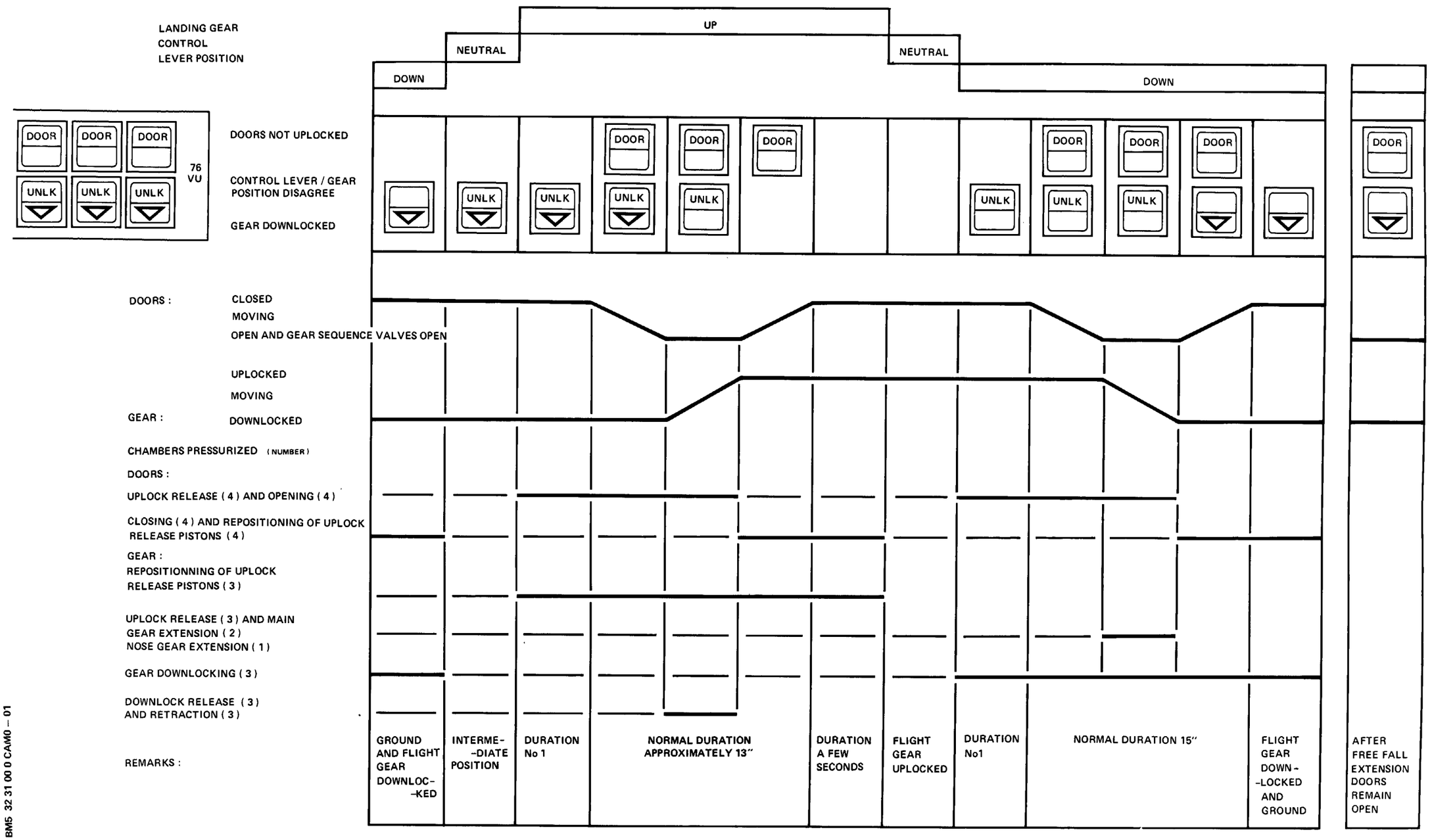
Retraction - Gear Retracting
Figure 057



Retraction - Gear Uplocked - Doors Closing
Figure 058



Retraction - Gear Uplocked - Doors Closed
Figure 059



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Extension/Retraction - Indicating
Figure 060

5. Door Ground Opening

A. Description
(Ref. Fig. 061)
The system has been designed so that each door can be opened separately.
Each door is operated by a control handle located :
- Nose landing gear : on each aft door
- Main landing gear : on air conditioning pack cooling air inlet.
The associated handle simultaneously controls via a mechanical control system :
- door uplock release (Ref. Para 2 - D)
- bypass valve slide valve displacement (Ref. Para B)

(1) Mechanical control system
Each control serves to operate a mechanical control system which includes :

(a) For each nose gear door (Ref. Fig. 062, 063, 064)
1 A linkage which drives a torsion tube.
2 A orsion tube which simultaneously drives the bypass valve and the uplock assembly by means of bellcranks and rods.
3 A torsion tube return spring which ensures the correct positioning of the torsion tube when the control handle is returned to CLOSED position.

(b) For each main gear door (Ref. Fig. 065, 063)
1 A rod and bellcranks which drive a teleflex control cable.
2 A teleflex control cable which drives the bypass valve and the uplock assembly by means of bellcranks and rods.
3 A return spring which restores the rods and bellcranks, actuated by the teleflex cable, to the initial configuration when the control handle is returned to CLOSED position.

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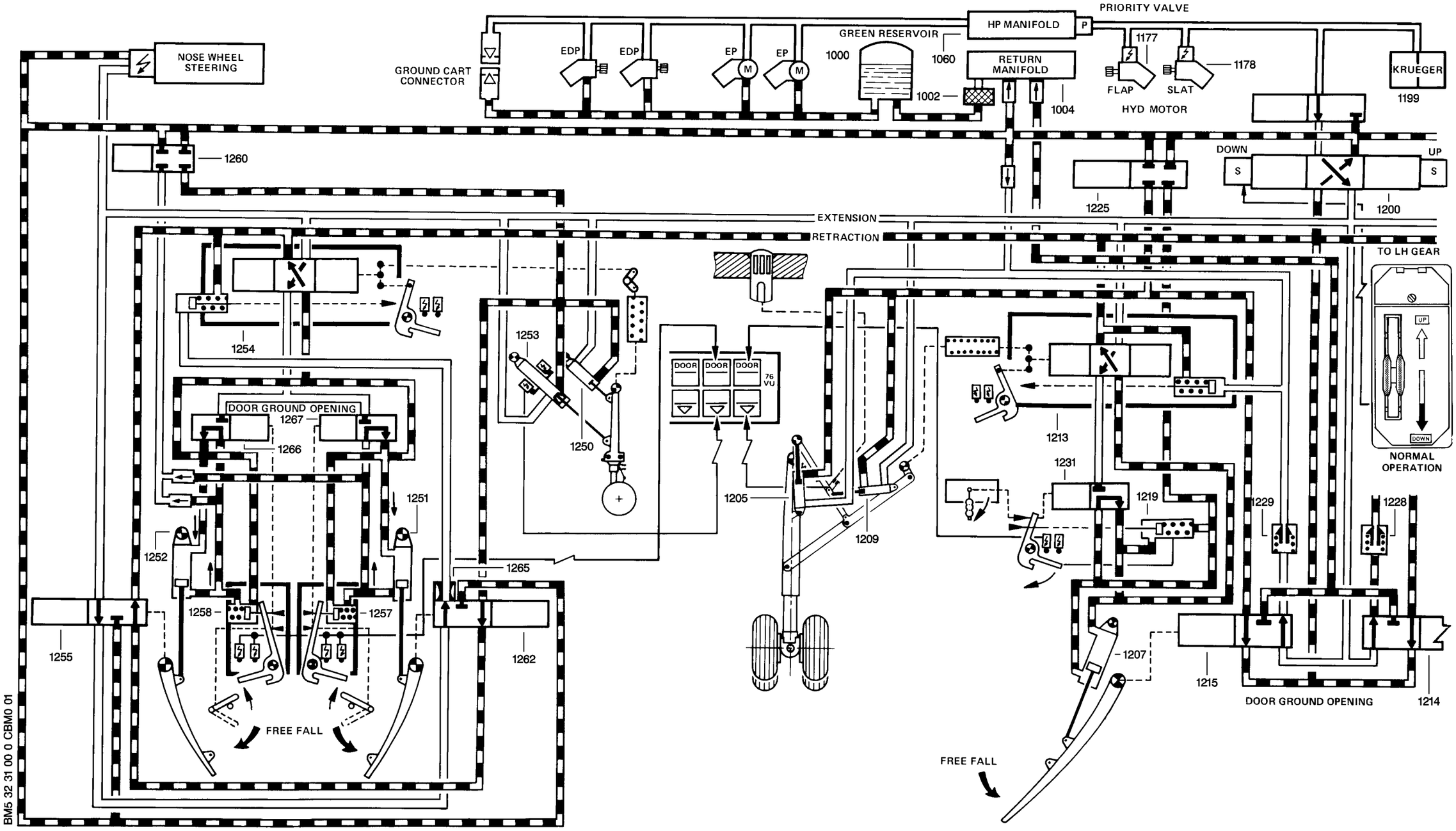
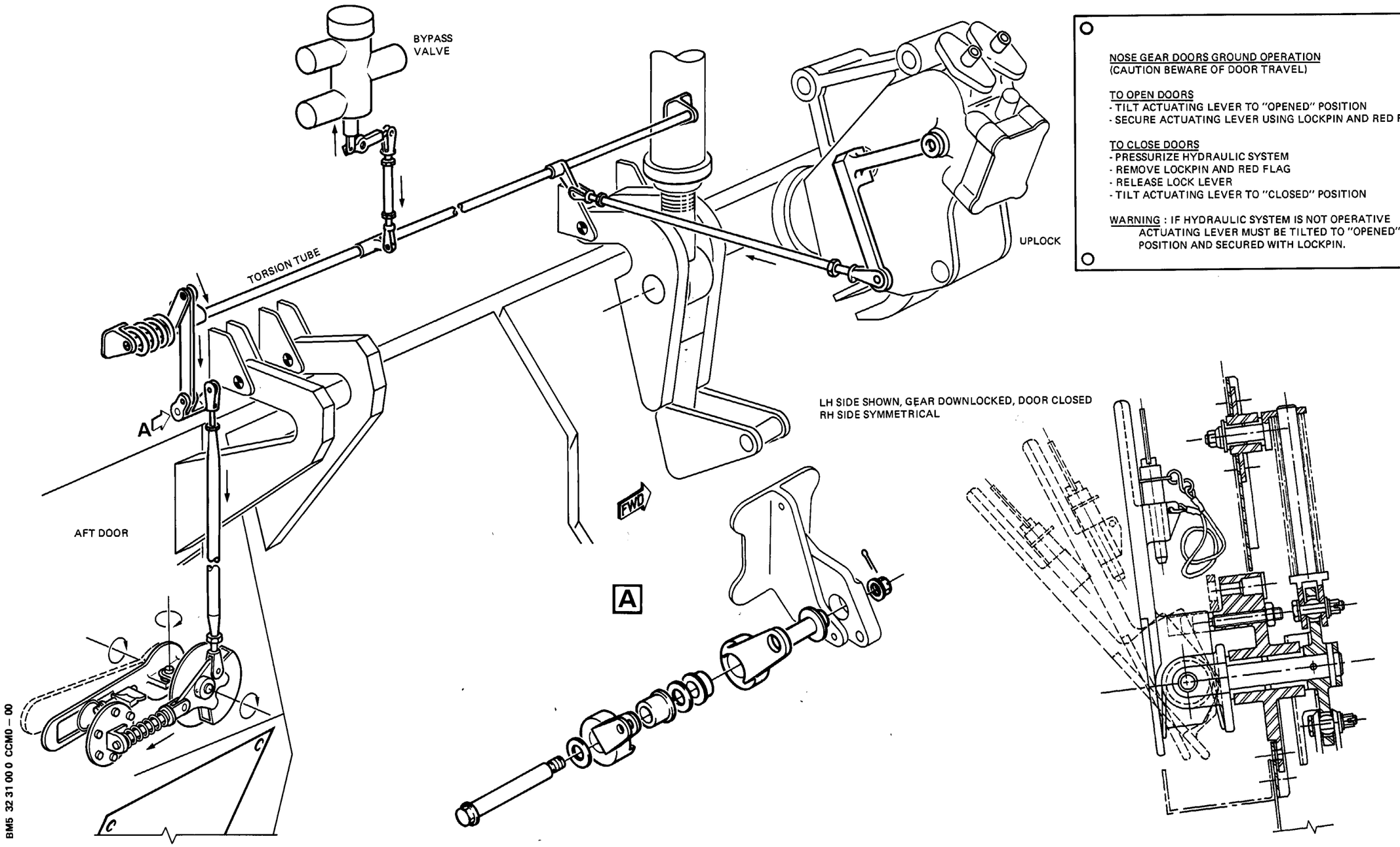


Gear Door Ground Opening
Figure 061



NOSE GEAR DOORS GROUND OPERATION
(CAUTION BEWARE OF DOOR TRAVEL)

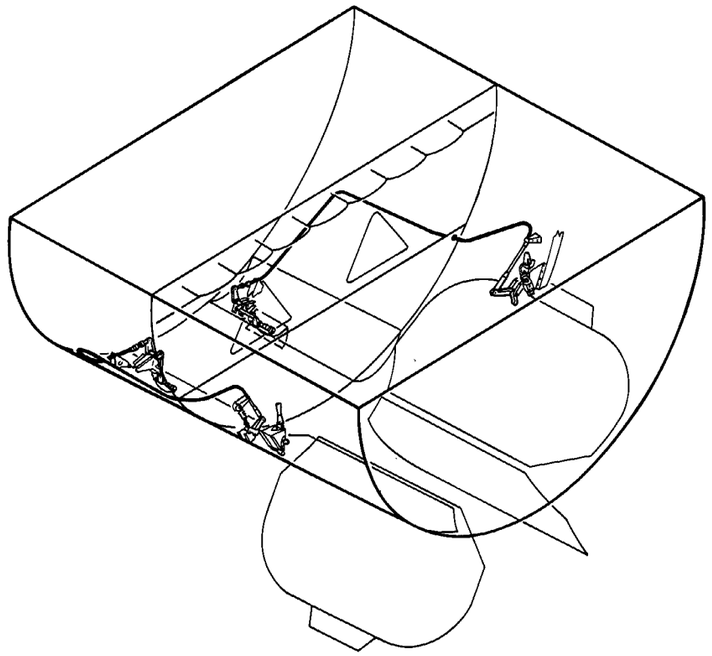
TO OPEN DOORS
- TILT ACTUATING LEVER TO "OPENED" POSITION
- SECURE ACTUATING LEVER USING LOCKPIN AND RED FLAG

TO CLOSE DOORS
- PRESSURIZE HYDRAULIC SYSTEM
- REMOVE LOCKPIN AND RED FLAG
- RELEASE LOCK LEVER
- TILT ACTUATING LEVER TO "CLOSED" POSITION

WARNING : IF HYDRAULIC SYSTEM IS NOT OPERATIVE ACTUATING LEVER MUST BE TILTED TO "OPENED" POSITION AND SECURED WITH LOCKPIN.

BM5 32 31 00 0 CCM0 - 00

Nose Door Gear Ground Opening Control
Figure 062

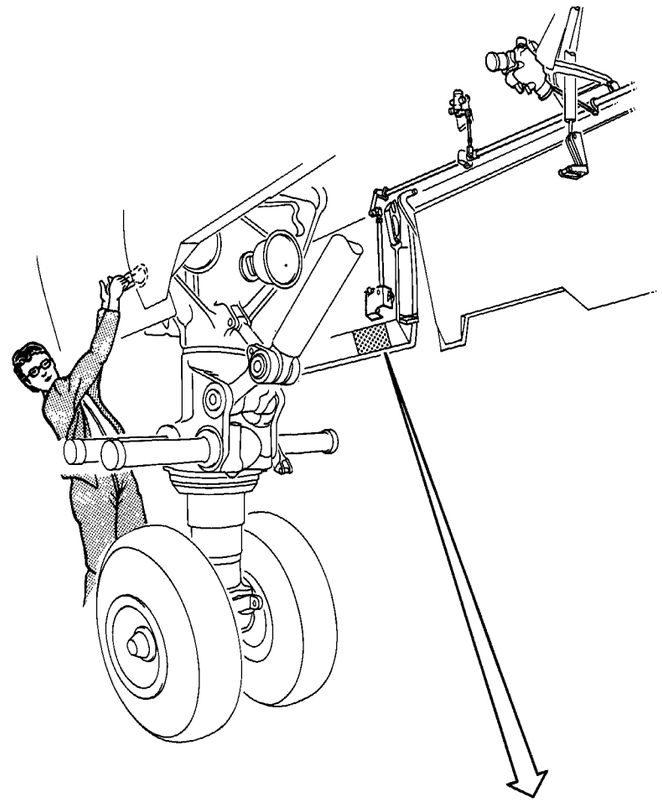


THE 4 L/G DOORS CAN BE INDEPENDENTLY GROUND OPENED PULLING DOWN THE CORRESPONDING LEVER ISOLATES THE SYSTEM FROM GREEN HYD PRESSURE, INTERCONNECTS THE CONCERNED ACTUATING CYLINDER CHAMBERS AND MECANICALLY RELEASES THE UPLOCK OF THE DOOR WHICH FALLS BY GRAVITY

CORRESPONDING AMBER DOOR LIGHT COMES ON IN THE FLIGHT COMPARTMENT

LEVER RESET CLOSED, HYD PRESSURE CLOSES THE DOOR PROVIDED L/G CONTROL LEVER IS SELECTED DOWN AND ELEC PWR AVAILABLE

DON'T LEAVE THE LEVER IN CLOSED POSITION WITH A/C NOT POWERED



NOSE GEAR DOORS GROUND OPERATION
(CAUTION BEWARE OF DOOR TRAVEL)

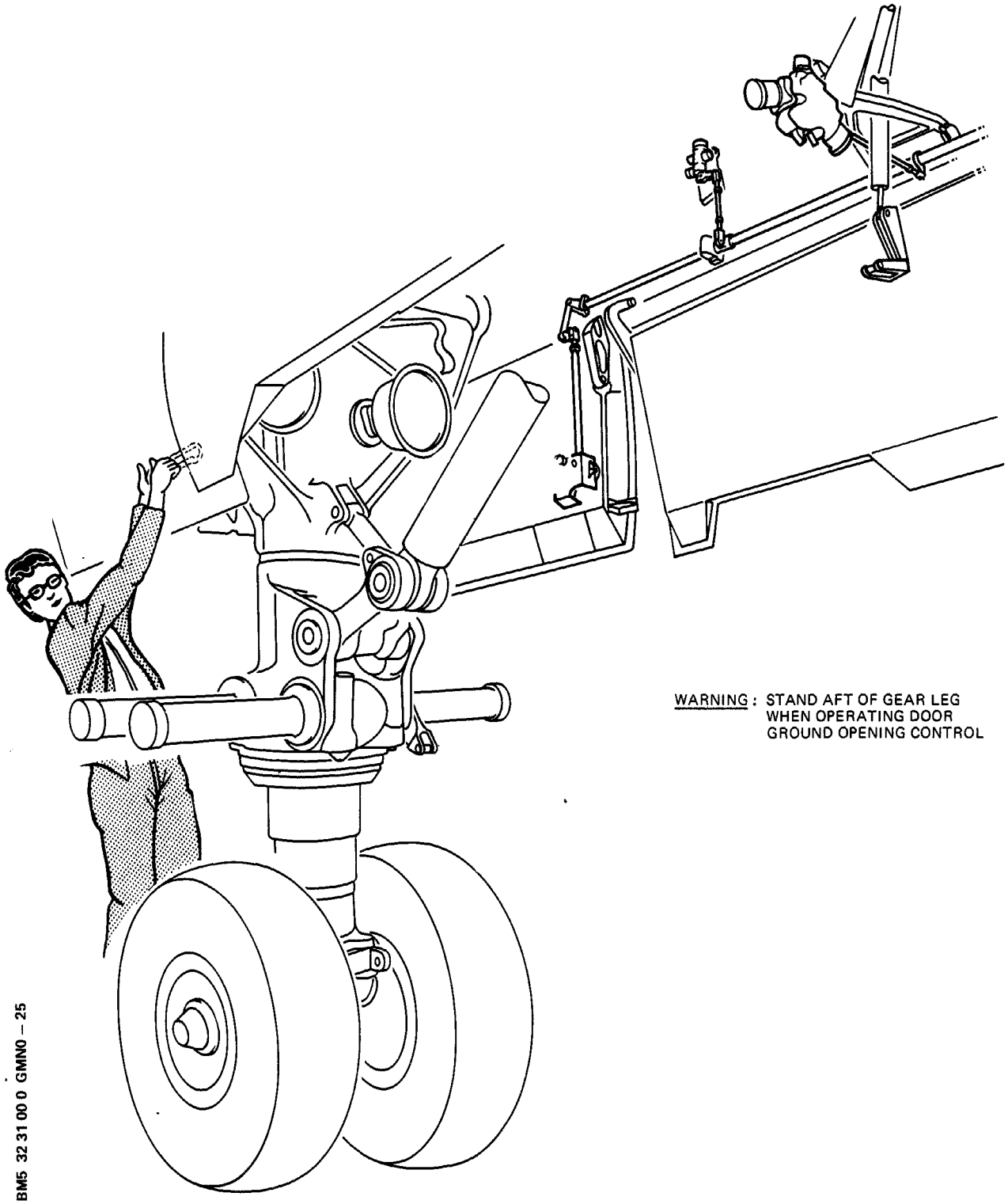
TO OPEN DOORS
- TILT ACTUATING LEVER TO «OPENED» POSITION
- SECURE ACTUATING LEVER USING LOCKPIN AND RED FLAG

TO CLOSE DOORS
- PRESSURIZE HYDRAULIC SYSTEM
- REMOVE LOCKPIN AND RED FLAG
- RELEASE LOCK LEVER
- TILT ACTUATING LEVER TO «CLOSED» POSITION

WARNING : IF HYDRAULIC SYSTEM IS NOT OPERATIVE ACTUATING LEVER MUST BE TILTED TO «OPENED» POSTION AND SECURED WITH LOCKPIN

BM5 32 31 00 0 GMM0 – 25

Door Ground Opening - Operating Instructions
Figure 063



Nose Gear Door Ground Opening - Safety Precautions
Figure 064

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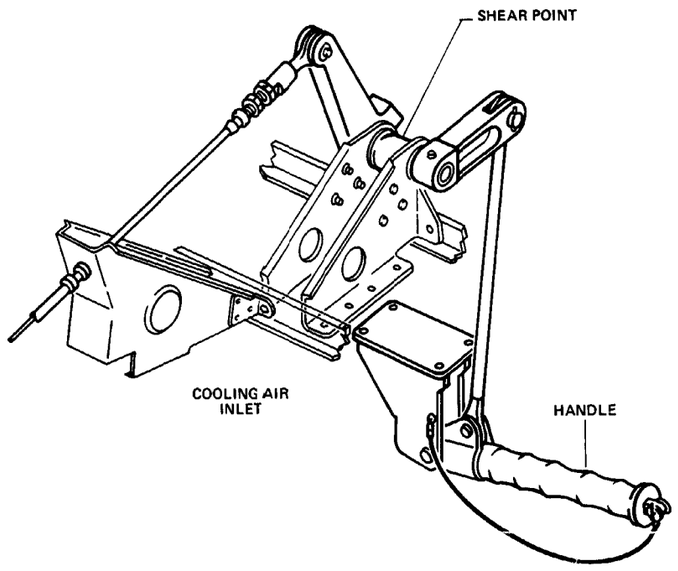
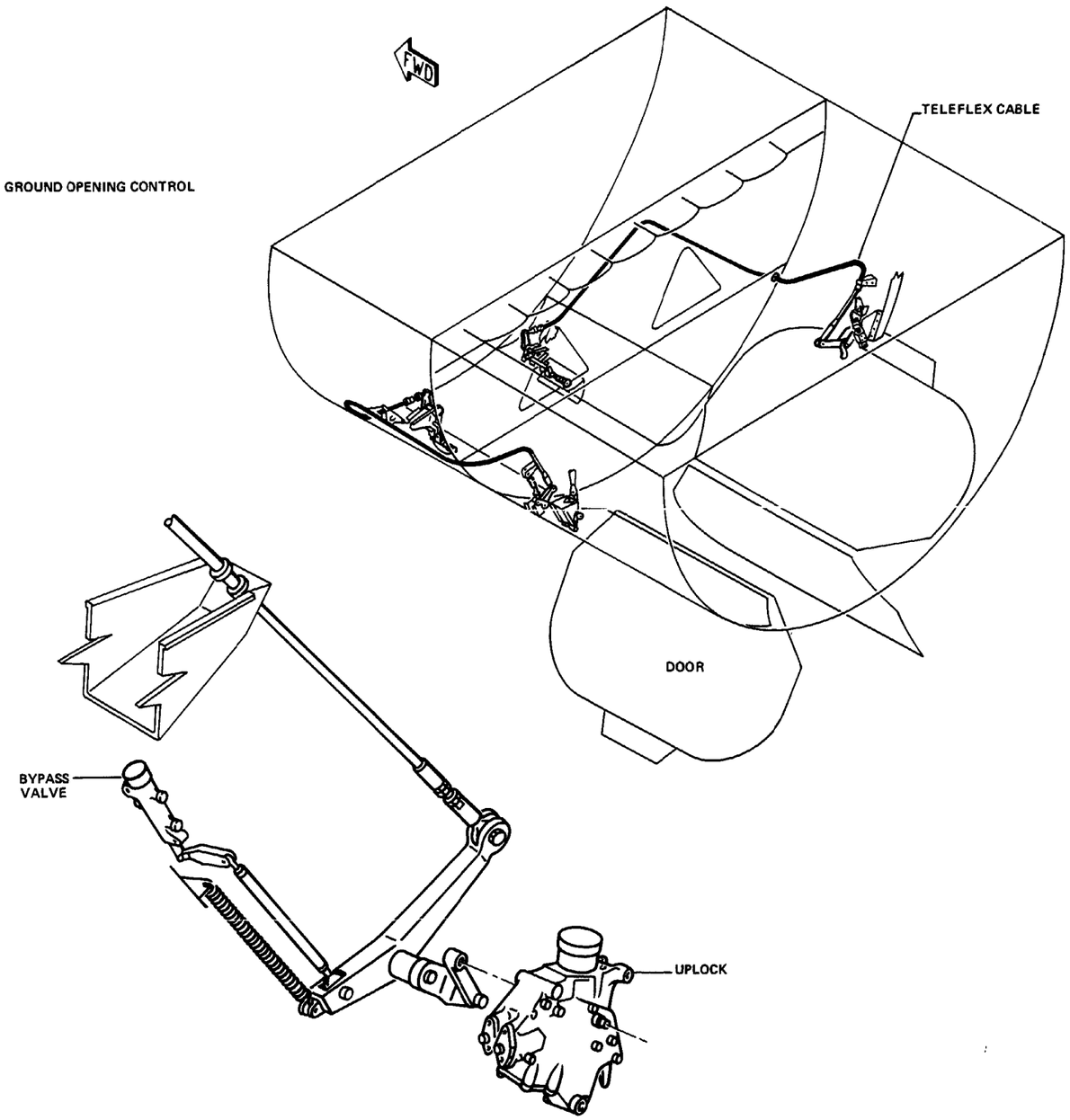
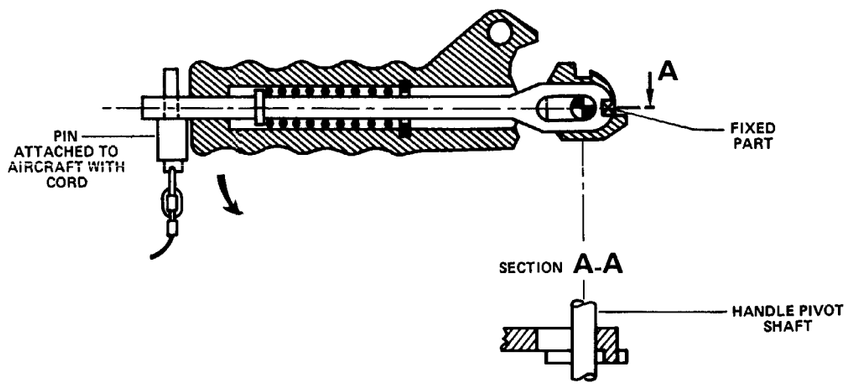


MAIN GEAR DOOR GROUND OPENING CONTROL



LH SIDE SHOWN
RH SIDE SYMMETRICAL



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Main Gear Door Ground Opening Control
Figure 065

B. Door Ground Opening Bypass Valve (Ref. Fig. 066)

(1)General

(a)There are four bypass valves ; one per gear main door.

(b)The main gear door bypass valves are located in section 15 near the door uplocks.

(c)The nose gear door bypass valves are located in the nose gear well ; one on each sidewall.

(2)Operation

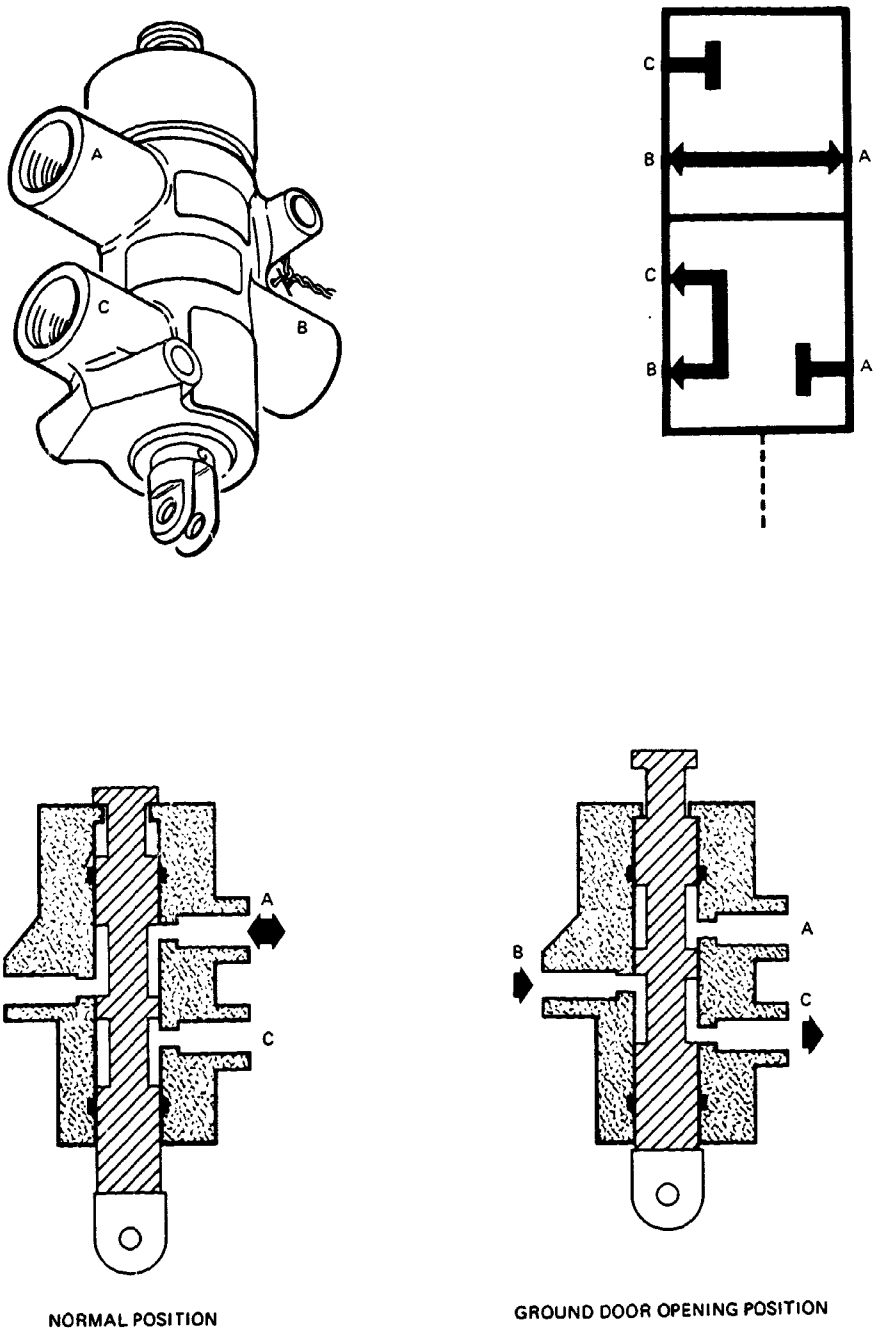
(a)Each bypass valve is operated by means of a manual control coupled to the uplock release lever of the corresponding door.

(b)When operated the bypass valve interconnects the door actuating cylinder opening and closing chambers and shuts off the door closing supply line ; the door uplock hook is released simultaneously and the door free falls to open position.

(c)When returned to normal configuration, the bypass valve admits pressure into the actuating cylinder closing chamber and thus controls door closure.

(3)Characteristics

Drawing	PR 70843-1
Weight without fluid	0.470 Kg
Identification of hydraulic ports	A - Door closing pressure inlet B - Door closing service outlet C - Connection with door opening chamber
Pressure drop : A to B B to C	 $\Delta P \leq 15$ bars for Q = 40 l/mn $\Delta P \leq 15$ bars for Q = 40 l/mn
Internal leakage flow rates : Slide valve in normal position, 206 bars at A	 Leakage at C ≤ 20 cm³/mn
Slide valve operating load with 206 bars at A	F $\leq$ 5 daN



NORMAL POSITION

GROUND DOOR OPENING POSITION

BM5 32 31 00 0 CEMO

Door Ground Opening Bypass Valve
Figure 066

6. Description of Electrical Components

A. General

The landing gear and door configuration is identified by two similar systems of microswitches and proximity detectors :

- System 1 supplied with 28VDC via busbar 305PP (ESSENTIAL BUSBAR) or, in the case of landing gear and door indicating on the center instrument panel, by busbar 303PP (ESSENTIAL BUSBAR) connected to the batteries if necessary.
- System 2 supplied via the NORMAL busbar 104PP (28VDC).

The signals generated are used in the following functions :

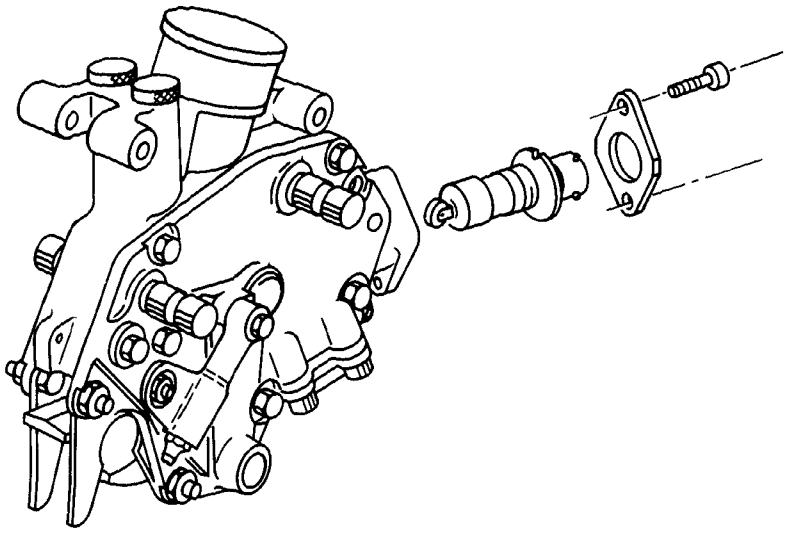
- Landing gear retraction safeties : Ref. 32-31
- Landing gear and door position indicating : Ref. 32-61
- Associated relays : Ref. 32-62

B. Microswitches (Ref. Fig. 067)

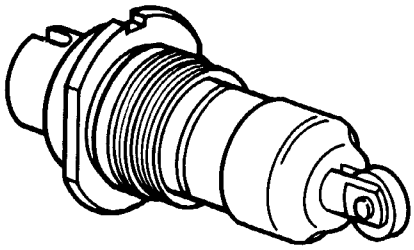
Microswitches are used in those areas which are relatively protected against projections from the ground.

- Door uplocks----------4
- Gear uplocks----------3
- Nose gear telescopic strut----------1

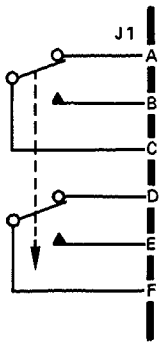
The microswitches are interchangeable.
They are of the two-pole, snap break type.
The extremity of the plunger is equipped with a roller.
Sealing is achieved by a welded bellows.
In the absence of input load the microswitch automatically returns to the break position.



EXTERNAL VIEW



WIRING DIAGRAM



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Microswitch
Figure 067

C. Proximity Detectors

(1)Description and operation

(a)Description

Proximity detection at any given point is achieved by :

. a target
. a sensor
. a proximity detector processing unit comprising 14 electronic modules.

1 Target

The target is made of extra mild steel and consists of a rectangular plate with two holes for its attachment.

2 Sensor (Ref. Fig. 068)

The sensor consists of a rectangular aluminum alloy unit. The unit contains an LC circuit with magnetic core inductance coil. A cable with two 24 gage conductors protected by a flexible conduit with steel shielding connects the proximity detector processing unit to the aircraft electrical wiring.

3 Proximity detector processing unit (Ref. Fig. 069)

The unit is of the 3/8 ATR short case type. The face of the unit is equipped with the following :

- Two 7-segment displays
- Three pushbutton switches :
  - MEMORY RESET
  - MEMORY RECALL
  - TEST
- Five indicator lights :
  - TARGET/NEAR
  - TARGET/FAR
  - SENSOR
  - BOX
  - FAULT

(b)Functions

The following configurations can be detected

. R main gear downlocked
. L main gear downlocked
. R gear bogie beam aligned
. L gear bogie beam aligned
. R gear shock absorber compressed
. L gear shock absorber compressed
. Nose gear shock absorber compressed and nose wheels centered.

These positions are detected by 2 independent detection channels (systems 1 and 2).

(2)Location

The 2 processing cards (SYS1, SY2) and the test card are housed in the processing unit located in rack 90VU in avionics compartment.

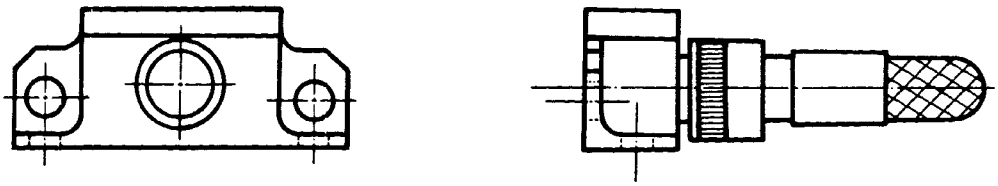
Sensor and target location is as follows :

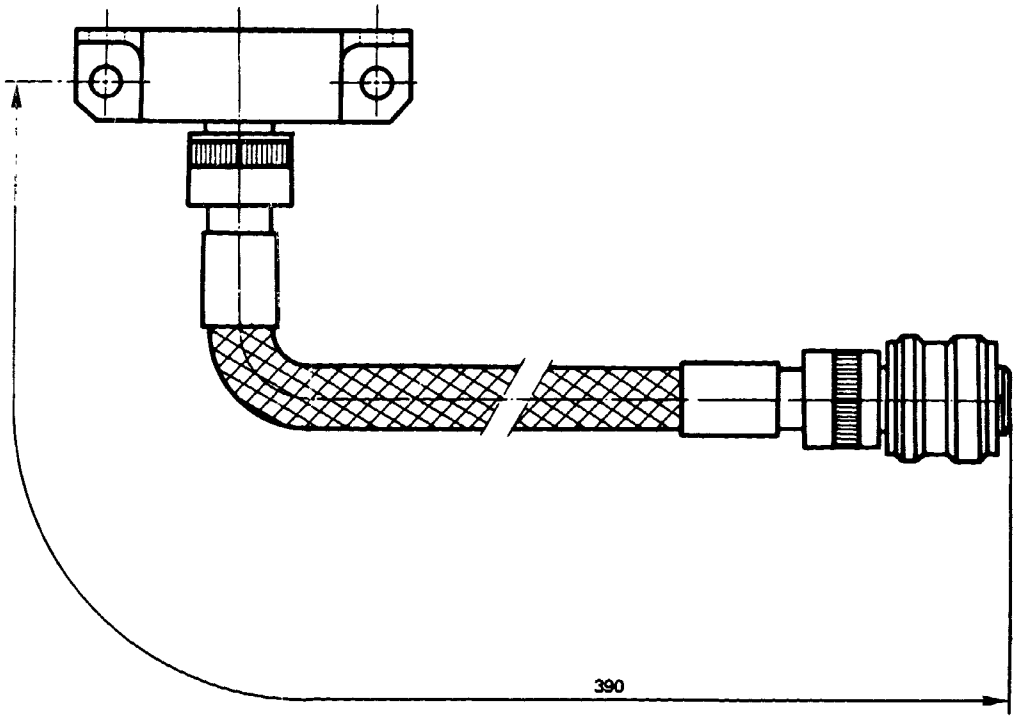
(a)Main gear downlocked : on main gear brace strut

(b)Bogie beam aligned : on main gear shock strut and bogie beam.

(c)Nose gear aligned and shock absorber extended : on nose gear shock strut and steering unit.

(d)Main gear shock absorber compressed : on shock absorber and shock strut.





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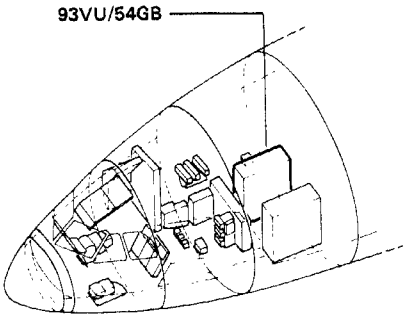
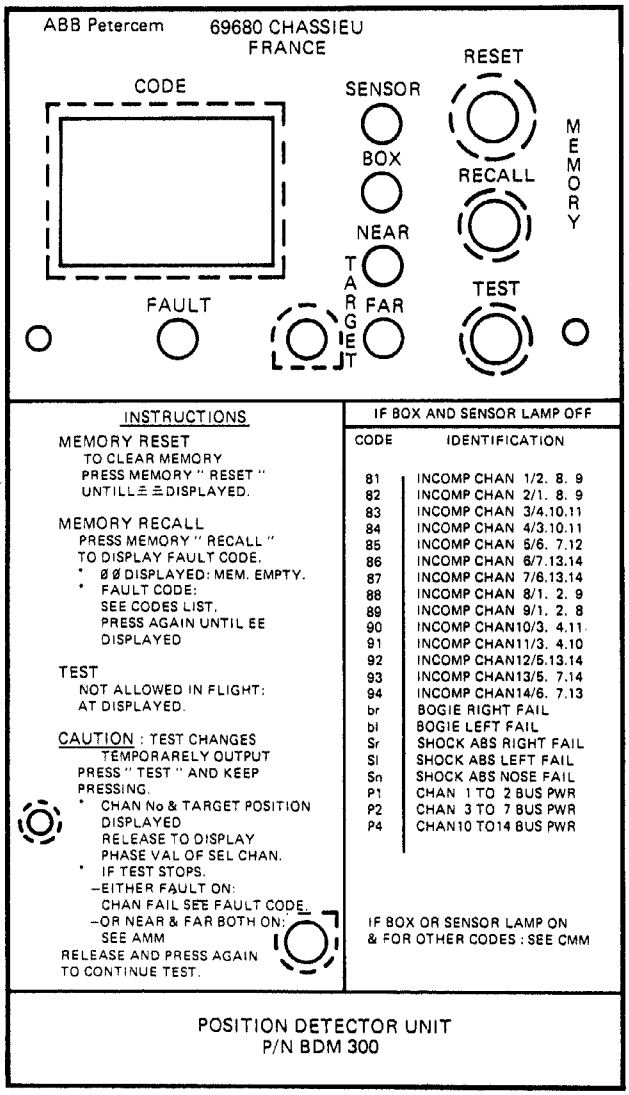
Sensor Assembly
Figure 068





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Proximity Detector Processing Unit (PETERCEM)
Figure 069

CHANNEL	FUNCTION	SYS	TARGET	STATE OF TRANSISTOR	CIRCUIT BREAKER	BUSBAR
1	L gear downlocked	1	Near	Conducting	3GB	303PP
2	R gear downlocked	1	Near	Conducting	3GB	303PP
3	L bogie beam aligned	1	Near	Conducting	119GB	305PP
4	R bogie beam aligned	1	Near	Conducting	119GB	305PP
5	Nose gear shock absorber extended and nose wheels centered	1	Near	Turned off	119GB	305PP
6	L shock absorber compressed	1	Far	Conducting	119GB	305PP
7	R shock absorber compressed	1	Far	Conducting	119GB	305PP
8	L gear downlocked	2	Near	Conducting	83GB	104PP
9	R gear downlocked	2	Near	Conducting	83GB	104PP
10	L bogie beam aligned	2	Near	Conducting	1GB	104PP
11	R bogie beam aligned	2	Near	Conducting	1GB	104PP
12	Nose gear shock absorber extended and nose wheels centered	2	Near	Turned off	1GB	104PP
13	L shock absorber compressed	2	Far	Conducting	1GB	104PP
14	R shock absorber compressed	2	Far	Conducting	1GB	104PP

(3)Principle of operation

(a)General

Detection is based on the principle of comparison of the phase shift between the current and the voltage in the sensor. The sensor is controlled by a fixed frequency sinusoidal oscillator. The approach of the target in the sensor electromagnetic field creates an impedance variation. At the limit of the detection threshold the phase shift between the current and the voltage is zero. It is the phase shift sign that enables to determine whether the target is in the near or far position.

(b)Fail safe circuit

In the event of an anomaly in the system, the output is forced to a safety status. Logic processing circuit 12 performs this function by simulating target in far position on the output signal.

(c)Test card (BITE)

The test is continuous and performs the following functions :

- self test : prior to each monitoring operation the test system performs a self test.
- BITE test : for each channel and on the basis of the information delivered by the processing cards, the test monitors :
  . the characteristics of the sensor and associated wiring
  . the electronic processing circuit.

(4)Detection characteristics (Ref. Fig. 070)

(a)Nominal detection distance (NDD).

The nominal detection distance is the distance separating the sensor from the target, along the OZ axis, at which the function is established.

(b)Nominal release distance (NRD)

The nominal release distance is the distance separating the sensor from

the target along the OZ axis, at which the function disappears.

(c)Mean response time

Mean response time when target at 4mm from sensor is suddenly withdrawn : 70ms approx.

Mean response time when target at 2mm from sensor is suddenly withdrawn : 80ms approx.

7. Electrical Circuit

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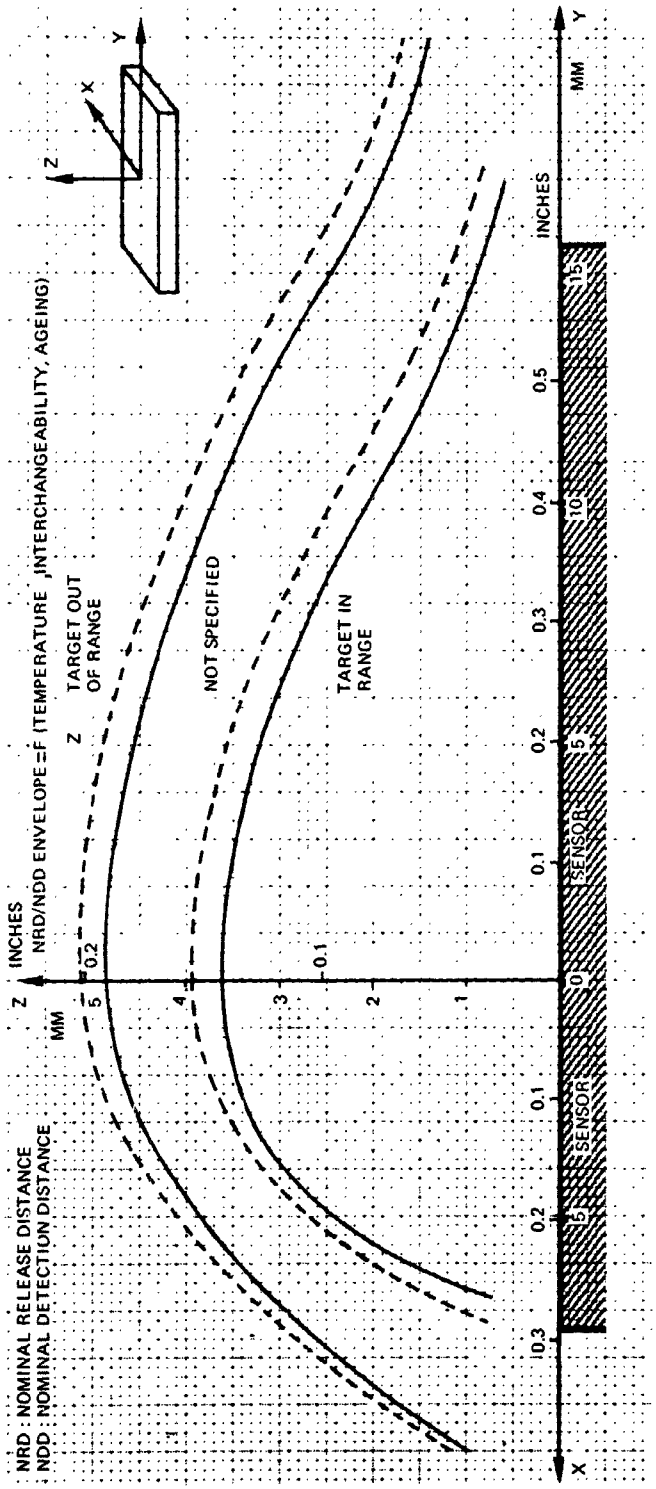

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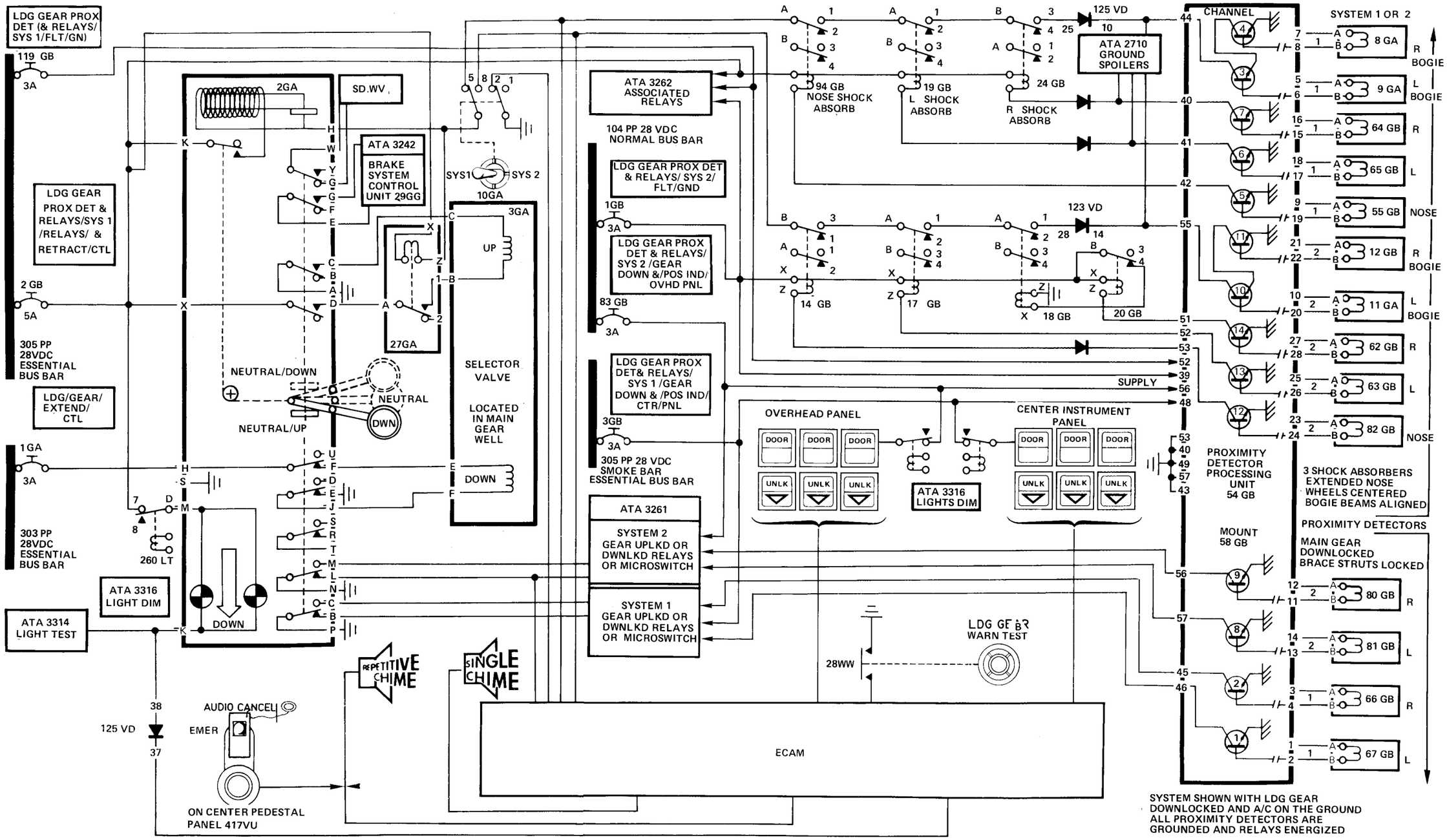
Proximity Detector - Operating Characteristics - Diagram
Figure 070

(Ref. Fig. 071)

A. The electrical control essentially consists in supplying the landing gear selector valve retraction or extension solenoid from the **ESSENTIAL** busbar **305PP** via circuit breaker **2GB** (retraction) or from the **ESSENTIAL** bus bar **303PP** via circuit breaker **1GA** (extension) and the landing gear control lever unit switches which serve to cut off both the supply and ground. Energization of selector valve **3GA** is controlled by relay **27GA**, the function of which is to prevent landing gear retraction if bogie beam is not aligned by cutting off electrical power to the selector valve.

B. Positioning of the landing gear control lever to **UP** is enabled by the energization of a coil by **305PP** via :
- **LDG GEAR PROX & RELAYS/SYS1/RELAYS/& RETRACT/CTL** circuit breaker **2GB**.
- The internal switch with lever pulled.
- Switch **10GA** in **SYS1** or **SYS2** position.
- The shock absorber relays supplied by :
  305PP - 2GB for system 1
  104PP - 1GB for system 2 (Ref. 32-62)
- The transistors in processing unit **54GB** saturated by the bogie beam proximity detectors in aligned position.

C. The diagram also includes indicating supply and ground connections and the interfaces with the associated relays (Ref.32-62) and the other systems.



Normal Extension/Retraction - Electrical Circuit
Figure 071

WARNING : CHECK THAT THE LANDING GEAR GROUND SAFETIES INCLUDING WHEEL CHOCKS ARE IN POSITION.
BEFORE APPLYING OR RELEIVING HYDRAULIC SYSTEM PRESSURE, MAKE CERTAIN THAT THE TRAVEL RANGES OF THE CONTROL SURFACES ARE CLEAR.
BEFORE PRESSURIZING HYDRAULIC SYSTEMS, CHECK THAT ALL CONTROLS ARE SET TO CORRESPOND WITH THE ACTUAL POSITION OF THE SERVICES THEY OPERATE.
BEFORE POWER IS SUPPLIED TO THE AIRCRAFT, MAKE CERTAIN THAT ELECTRICAL CIRCUITS UPON WHICH WORK IS IN PROGRESS ARE ISOLATED.
BEFORE PRESSURIZING HYDRAULIC SYSTEMS, MAKE CERTAIN THAT HYDRAULIC SYSTEM UNDER MAINTENANCE HAS BEEN ISOLATED.

1. Nose Gear Door - Ground Opening/Control Mechanism Jamming

A. Reason for the Job

R - Lubrication of bypass valve bellcrank assembly and torsion tube center
R bearing of nose gear ground opening/control mechanism
R - Lubrication of mechanical linkage bellcrank assembly of nose gear ground
R opening/control mechanism

B. Equipment and Materials

ITEM	DESIGNATION
A.	Access platform 2 m - 2.6 m (6 ft. 7 in. - 8 ft. 7 in.)
B.	Safety Barriers
C.	Warning Notices
D. Material No. 03-001	Oils (Ref. 20-31-00)
E. Material No. 04-004	Common Greases (Ref. 20-31-00)
F. Material No. 09-013	Sealants (Ref. 20-31-00)
G. Material No. 11-002	Cleaning Agents (Ref. 20-31-00)
Referenced Procedures	
- 29-10-00, P. Block 301	Main Hydraulic Power Pressurization/ Depressurization
- 29-14-00, P. Block 301	Hydraulic Reservoir Pressurization System
- 32-12-11, P. Block 301	Main Gear Main Door (Ground Door Opening)
- 32-22-11, P. Block 301	Nose Gear Main Door (Ground Door Opening)
- 32-31-00, P. Block 501	Normal Extension and Retraction
- 32-31-15, P. Block 401	NLG Door Ground Opening Bypass Valve

C. Job Set-Up

(1)On panel 4VU
- make certain that landing gear control lever is in **DOWN** position and prohibit its operation by displaying a warning notice.

(2)Between First Officer's and Third Occupant's seats
- make certain that landing gear Free Fall extension control handle is in Normal position.

(3)Position access platforms

(4)Position safety barriers prohibiting access to door travel ranges.
WARNING : MAKE CERTAIN THAT THE DOOR TRAVEL RANGES ARE CLEAR.
(5)Open nose and right main landing gear door (Ref. 32-12-11, P. Block 301 and 32-22-11, P. Block 301).
WARNING : WHEN DOORS ARE OPEN, MAKE CERTAIN THAT SAFETY COLLARS ARE POSITIONED ON DOOR ACTUATING CYLINDERS.
(6)Depressurize Green hydraulic reservoir (Ref. 29-14-00, P. Block 301) and prohibit its pressurization by displaying a warning notice :
- on panel 429VU to prohibit APU starting
- on reservoir pressurization connector.
(7)Depressurize Green hydraulic system (Ref. 29-10-00, P. Block 301) and prohibit its pressurization by displaying a warning notice :
- on Green hydraulic system ground connectors
- on panel 427VU to prohibit operation of Green electric pump (ELEC PUMPS pushbutton switch).

D. Bypass Valve (1266-1267) Bellcrank Assy
(1)Removal (Ref. Fig. 201)
(a)Remove bypass valve (Ref. 32-31-15, P. Block 401 Para. B.).
(b)Remove cotter pin (8) and release nut (9).
(c)Remove nut (9) and washer (10).
(d)Disconnect bellcrank rod end bearing (2) from single fork rod end fitting (7).
1 Remove cotter pin (5) and release nut (6).
2 Remove nut (6), bolt (3) and washer (4).
(e)Remove bypass valve bellcrank assy (11) from pivot bracket (1) and single fork rod end fitting (7).
(f)Clean inside of bellcrank assy (11) and pivot bracket (1), with Material No. 11-002 and dry with filtered compressed air.
(g)Grease pivot bracket (1) and inside of bellcrank (11) with Material No. 03-001.
(h)Clean ball bearing on rod (2) with Material No. 11-002, dry with filtered air and grease with Material No. 03-001.
(2)Installation (Ref. Fig. 201)
(a)Position bellcrank (11) on pivot bracket (1).
(b)Connect bellcrank rod end bearing (2) to single fork rod end fitting (7) :
1 Install bolt (3), washer (4), nut (6), tighten and safety with cotter pin (5).
(c)Install washer (10), nut (9), tighten and safety with cotter pin (8).
(d)Install bypass valve (Ref. 32-31-15, P. Block 401 Para. D.).
NOTE : A bush is stuck inside the bypass valve bellcrank assy (11).

E. Torque Tube Center Bearing
(1)Removal (Ref. Fig. 201)
(a)Remove cotter pin (17) and release nut (16).
(b)Remove nut (16), bolt (12) and washer (15).
(c)Disconnect single fork rod end fitting (18) from torque tube lug (14).
(d)Clean torque tube lug (14) equipped with bearing (13) with Material No. 11-002 and dry with filtered compressed air.
(e)Grease torque tube lug (14) as well as bearing (13) with Material

No. 03-001.

(2)Installation (Ref. Fig. 201)

(a)Connect single fork rod end fitting (18) to torque tube lug (14).

(b)Install bolt (12), washer (15), nut (16), tighten and safety with cotter pin (17).

R

F. Mechanical Linkage of Bellcranks

(1)Removal (Ref. Fig. 202)

(a)Disconnect link assy (14) from bellcrank (7).

1 Remove cotter pin (16) and release nut (15).

2 Remove nut (15), and washer (13).

(b)Disconnect adjustable control rod (19) from bellcrank (5).

1 Remove cotter pin (21) and release nut (20).

2 Remove nut (20), bolt (17) and washer (18).

(c)Remove bellcranks (7) and (5) from support.

1 Clean parts retained from removed component with Material No. 11-002.

2 Remove cotter pin (1) and release nut (2).

3 Remove nut (2) and washer (3).

4 Remove hinge pin (9), washer (8) and retain bellcranks (7) and (5) as well as washer (6) and spacer (4).

5 Remove bolt (12) and (17).

(d)Clean inside of bellcrank (7) and (5) with Material No. 11-002 then dry with filtered compressed air.

(e)Grease inside of bellcranks (7) and (5) with Material No. 03-001.

(2)Installation (Ref. Fig. 202)

(a)Installation of bellcranks (7) and (5) on support.

1 Install and align bellcrank (5), washer (6) and bellcrank (7) on spacer (4).

2 Install washer (8) on hinge pin (9) and insert on support with bellcranks assy.

NOTE : - Bushes (10) and (11) are respectively stuck inside bellcrank (5) and bellcrank (7).
- To facilitate installation of hinge pin (9), smear it with Material No. 04-004 or Material No. 04-022.

NOTE : Do not mix Material No. 04-004 with Material No. 04-022. You can use Material No. 04-022 as an alternative to Material No. 04-004. Clean and degrease the parts before you use Material No. 04-022.

3 On bellcrank (5) insert control rod (19), install bolt (17) before tightening nut (2).

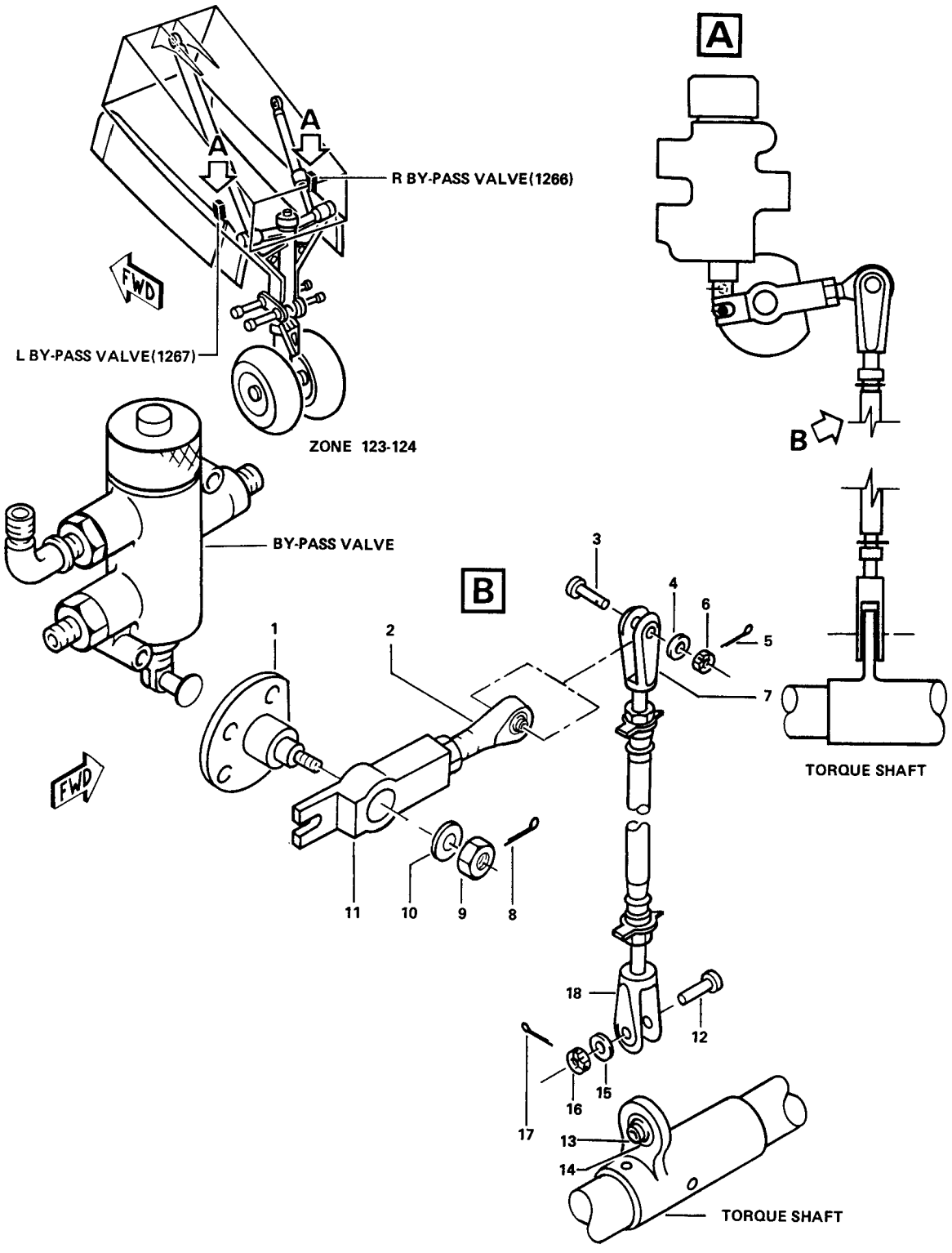
4 On bellcrank (7) insert link assy (14), install bolt (12) before tightening nut (2).

5 Install washer (3), nut (2), tighten and safety with cotter pin (1).

6 Smear nut (2) and bolt (9) head with Material No. 09-013.

(b)Connection of adjustable control rod (19) to bellcrank (5).

1 Install washer (18), nut (20), tighten and safety with cotter pin (21).



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Bypass Valve Bellcranck Assy
Figure 201

R

(c)Connection of link assy (14) to bellcrank (7).
1 Install washer (13), nut (15), tighten and safety with cotter pin (16).

G. Tests
(1)Perform nose gear door ground opening test (Ref. 32-31-00, P. Block 501).
(2)Check for external leakage at bypass valve.

H. Close-Up
(1)Make certain that working area is clean and clear of tools and miscellaneous items of equipment.
(2)Pressurize hydraulic reservoirs (Ref. 29-14-00, P. Block 301).
WARNING : MAKE CERTAIN THAT DOOR TRAVEL RANGES ARE CLEAR.
(3)Close main and nose gear doors (Ref. 32-12-11, P. Block 301 and 32-22-11, P. Block 301).
(4)Remove warning notices.
(5)Close access doors, remove access platforms and safety barriers.
(6)Remove all ground handling and maintenance equipment, standard and special tools, together with ground power and replenishing equipment, all access equipment and miscellaneous items.

**ON A/C 105-200,

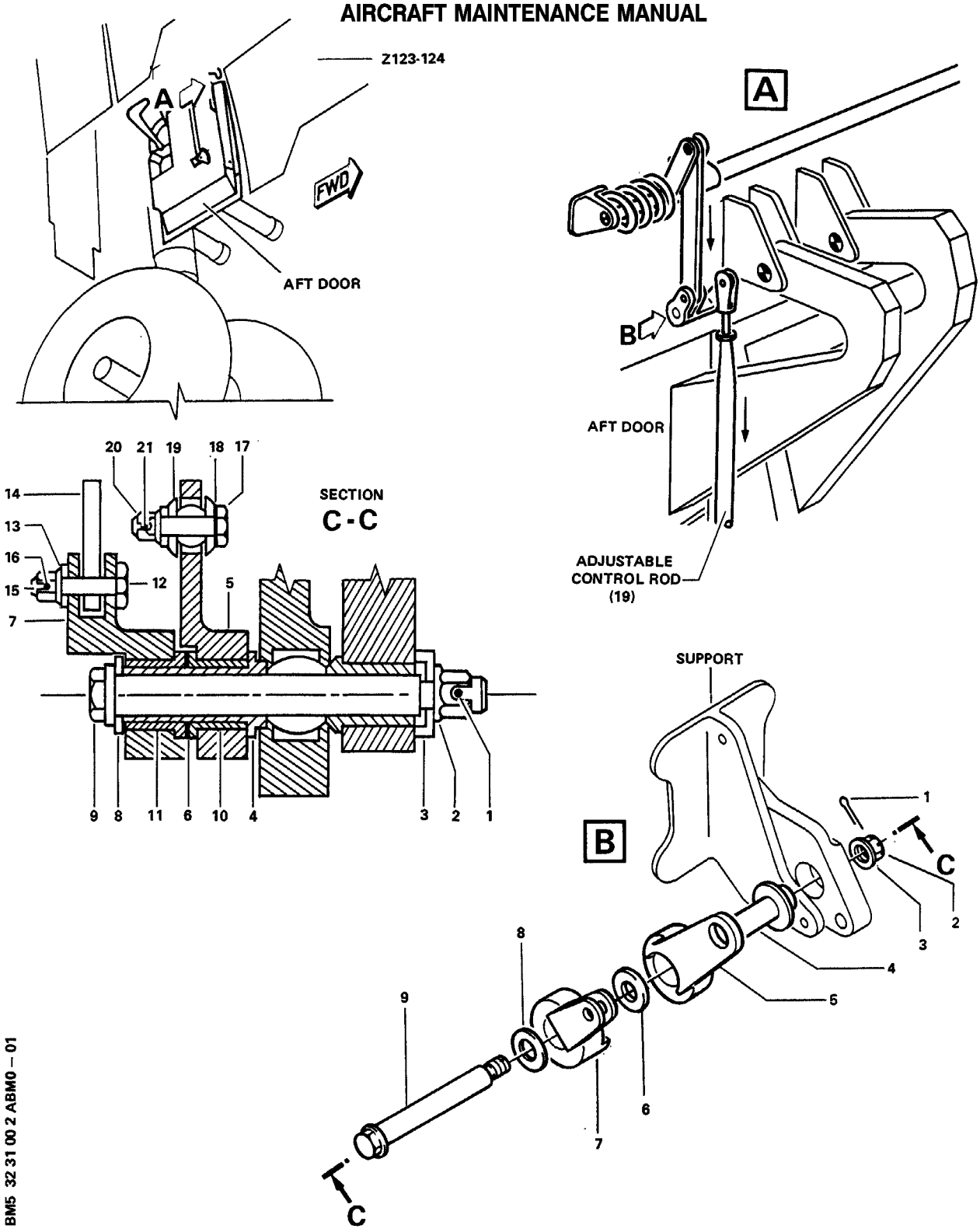
Post SB 32-2095 For A/C 105-200,

F. Mechanical Linkage of Bellcranks
(1)Lubrication
(a)Grease inside of bellcrank from grease nipple with Material No. 04-004 or Material No. 04-022.
NOTE : Do not mix Material No. 04-004 with Material No. 04-022. You can use Material No. 04-022 as an alternative to Material No. 04-004. Clean and degrease the parts before you use Material No. 04-022.

G. Tests
(1)Perform nose gear door ground opening test (Ref. 32-31-00, P. Block 501).
(2)Check for external leakage at bypass valve.

H. Close-Up
(1)Make certain that working area is clean and clear of tools and miscellaneous items of equipment.
(2)Pressurize hydraulic reservoirs (Ref. 29-14-00, P. Block 301).
WARNING : MAKE CERTAIN THAT DOOR TRAVEL RANGES ARE CLEAR.
(3)Close main and nose gear doors (Ref. 32-12-11, P. Block 301 and 32-22-11, P. Block 301).
(4)Remove warning notices.
(5)Close access doors, remove access platforms and safety barriers.
(6)Remove all ground handling and maintenance equipment, standard and special tools, together with ground power and replenishing equipment, all

access equipment and miscellaneous items.



Mechanical Linkage
Figure 202

MAIN GEAR WHEEL RAMP GUIDE - REMOVAL/INSTALLATION

WARNING : CHECK THAT LANDING GEAR GROUND SAFETIES INCLUDING WHEEL CHOCKS ARE IN POSITION.
BEFORE APPLYING OR RELIEVING HYDRAULIC SYSTEM PRESSURE, MAKE CERTAIN THAT TRAVEL RANGES OF CONTROL SURFACES ARE CLEAR.
BEFORE PRESSURIZING HYDRAULIC SYSTEM, CHECK THAT ALL CONTROLS ARE SET TO CORRESPOND WITH ACTUAL POSITION OF SERVICES THEY OPERATE.
BEFORE POWER IS SUPPLIED TO AIRCRAFT, MAKE CERTAIN THAT ELECTRICAL CIRCUITS UPON WHICH WORK IS IN PROGRESS ARE ISOLATED.
BEFORE PRESSURIZING HYDRAULIC SYSTEMS, MAKE CERTAIN THAT HYDRAULIC SYSTEM UNDER MAINTENANCE HAS BEEN ISOLATED.

1. Reason for the Job
Removal of wheel ramp guide and of strut for replacement.

2. Equipment and Materials

ITEM	DESIGNATION
A.	Access platform 2.60 m (8 ft. 7 in.)
B.	Warning Notices
C.	Safety Barriers
D. 98A53003010000	Measuring Rule - Onboard Rod
98A53003010041	Measuring Rule - Onboard Rod Center-To-Center Distance (sub assy of 98A53003010000) Min. 470 mm (18.504 in.), Max. 700 mm (27.56 in.)
98A53003010046	Measuring Rule - Onboard Rod (sub assy of 98A53003010000) Min. 1000 mm (39.37 in.), Max. 1510 mm (59.44 in.)
Referenced Procedures	
- 32-12-11, P. Block 301	Main Gear Main Door - (Ground Door(s) Opening)
- 29-10-10, P. Block 301	General - Servicing
- 29-14-00, P. Block 301	Hydraulic Reservoir Pressurizing System - Servicing

3. Procedure

A. Job Set-Up
(1)On panel 4VU
- Make certain that landing gear control lever is in **DOWN** position and prohibit its operation by displaying a warning notice.

(2)Between First Officer's and Third Occupant's seats
- Make certain that Free Fall extension control handle is in Normal position.

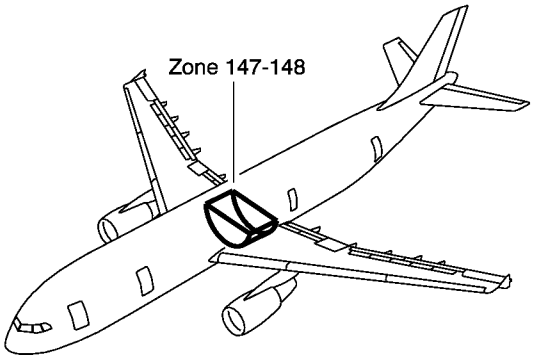
(3)Position access platform.
(4)Position safety barriers prohibiting access to door travel ranges.
WARNING : MAKE CERTAIN THAT DOOR TRAVEL RANGES ARE CLEAR.

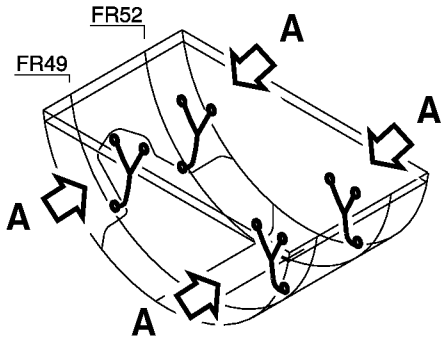
(5)Open applicable main gear door (Ref. 32-12-11, P. Block 301).
WARNING : WHEN DOOR IS OPEN, MAKE CERTAIN THAT SAFETY COLLAR IS POSITIONED ON DOOR ACTUATING CYLINDER.
(6)Depressurize Green hydraulic reservoir (Ref. 29-14-00, P. Block 301) and prohibit its pressurization by displaying a warning notice:
- On panel 429VU to prohibit APU starting
- On reservoir pressurization connector.
(7)Depressurize Green hydraulic system (Ref. 29-10-00, P. Block 301) and prohibit its pressurization by displaying a warning notice:
- On Green hydraulic system ground connectors
- On panel 427VU to prohibit operation of Green electric pumps (ELEC PUMPS pushbutton switch).
(Ref. Fig. 401)

B. Removal
(1)Removal of brace
(a)Remove and discard cotter pins (4).
(b)Remove nuts (3), washers (2) and bolts (1).
(c)Remove brace (5).
(2)Removal of wheel ramp guide
(a)Remove and discard cotter pins (7).
(b)Remove nuts (8), washers (9) and bolts (10).
(c)Remove wheel ramp guide (6).

C. Installation
(Ref. Fig. 401)
(1)Installation of new wheel ramp guide
(a)Using rule P/N 98A53003010000 note center-to-center distance between attachment fittings (11).
(b)Drill and ream wheel ramp guide (6) considering center-to-center distance noted in Para. (a).
(c)Chamfer each side of hole bores at 0.5 mm (0.02 in.)/45°.
(d)Clean wheel ramp guide and hole bores with compressed air.
(e)Position wheel ramp guide (6).
(f)Install bolts (10), washers (9) and nuts (8).
(g)Tighten nuts (8) and safety with new cotter pins (7).
(2)Installation of new brace
(a)Using rule P/N 98A53003010000 note center-to-center distance between attachment fittings (12).
(b)Drill and ream brace (5) considering center-to-center distance noted in Para. (a).
(c)Chamfer each side of hole bores at 0.5 mm (0.02 in.)/45°.
(d)Clean brace (5) and hole bores with compressed air.
(e)Position brace (5).
(f)Install bolts (1), washers (2) and nuts (3).
(g)Tighten nuts (3) and safety with new cotter pins (4).

D. Close-Up
(1)Make certain that working area is clean and clear of tools and miscellaneous items of equipment.
(2)Close main gear doors (Ref. 32-12-11, P. Block 301).





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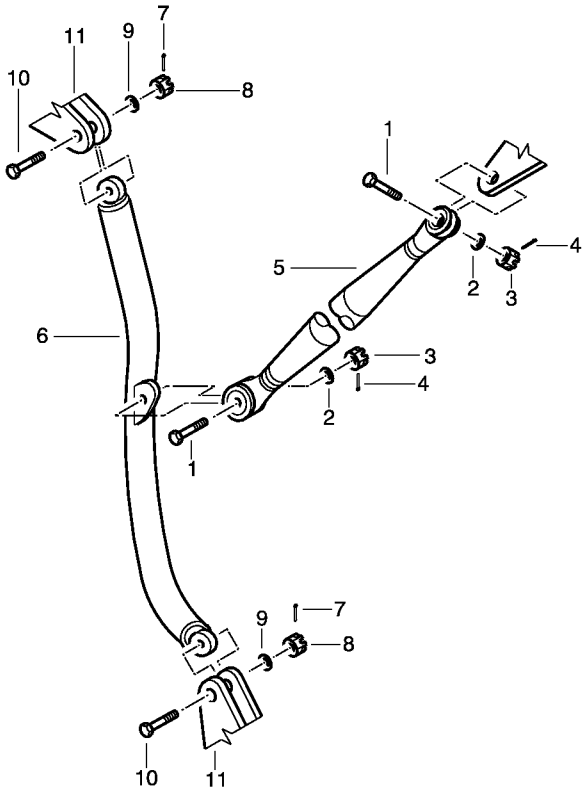

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Main Landing Gear Wheel Ramp Guide
Figure 401

(3)Remove warning notices.
(4)Close safety barriers and access platforms.

1. Adjustment of Landing Gear Extension and Retraction Control Components

WARNING : CHECK THAT THE LANDING GEAR GROUND SAFETIES INCLUDING WHEEL CHOCKS ARE IN POSITION.
BEFORE APPLYING OR RELIEVING HYDRAULIC SYSTEM PRESSURE, MAKE CERTAIN THAT THE TRAVEL RANGES OF THE CONTROL SURFACES ARE CLEAR.
BEFORE PRESSURIZING HYDRAULIC SYSTEMS, CHECK THAT ALL CONTROLS ARE SET TO CORRESPOND WITH THE ACTUAL POSITION OF THE SERVICES THEY OPERATE.
BEFORE POWER IS SUPPLIED TO THE AIRCRAFT MAKE CERTAIN THAT ELECTRICAL CIRCUITS UPON WHICH WORK IS IN PROGRESS ARE ISOLATED.
BEFORE PRESSURIZING HYDRAULIC SYSTEMS, MAKE CERTAIN THAT HYDRAULIC SYSTEM UNDER MAINTENANCE HAS BEEN ISOLATED.

A. Reasons for the Job
(1)Adjustment of nose gear sequence valve control.
(2)Adjustment of nose gear door sequence valve control.
(3)Adjustmnet of left and right main gear sequence valve control.
(4)Adjustment of main gear door sequence valve control.
(5)Adjustment of door ground opening control.

B. Equipment and Materials

	ITEM	DESIGNATION
	(1)98A32301011000	Pin - Rigging, Nose Gear Door Sequence Valve Control
	(2)98A32301010000	Pin - Rigging, Nose Gear Door Sequence Valve Control
	(3)98A32301012000	Pin - Rigging, Nose Gear Sequence Valve Control
R	(4)98A32101505000	Pin - Rigging, Main Gear Door Selector Control
	(5)98A32301018000	Pin - Rigging, Main Gear Selector Control
	(6)98A32201011000	Pin-Rigging
	(7)98A32301001000	Pin-Rigging, Landing Gear Emergency Lowering Control
	(8)98A32301000000	Pin-Rigging, Nose Gear Emergency Lowering Control
	(9)	Safety Barriers
	10)	Access Platform
	11)	Warning Notices
	12)Material No. 09-001	Sealants (Ref. 20-31-00)
	Referenced Procedures	
	- 29-10-00, P. Block 301	Main Hydraulic Power - Pressurization/Depressurization
	- 32-12-11, P. Block 301	Main Gear Main Door - (Ground Door(s) Opening)
	- 32-22-11, P. Block 301	Nose Gear Main Door - (Ground Door(s) Opening)

C. Procedure
(1)Job set-up

(a)On panel 4VU
- make certain that landing gear control lever is in **DOWN** position and prohibit its operation by displaying a warning notice.

(b)Between First Officer's and Third Occupant's seats
- make certain that Free Fall extension control handle is in Normal position.

(c)Position access platform

(d)Position safety barriers prohibiting access to door travel ranges
WARNING : MAKE CERTAIN THAT THE DOOR TRAVEL RANGES ARE CLEAR.

(e)Open main and nose gear doors according to adjustment to be performed (Ref. 32-12-11, P. Block 301 and 32-22-11, P. Block 301).

(f)Depressurize Green hydraulic system (Ref. 29-10-00, P. Block 301).

(2)Adjustment of nose gear sequence valve control
(Ref. Fig. 501)

(a)Adjustment of rod linking valve to left door :

1 Maintain left door open, actuating cylinder rod in the fully extended position.

2 Make certain that it is possible to rig sequence valve control lever with rigging pin 98A32301012000. If not possible, adjust length of rod until rigging pin can be readily inserted into valve.

3 Tighten and safety rod end fittings.

4 Remove rigging pin 98A32301012000.

(b)Adjustment of rod linking valve to right door :
Follow same procedure as for rod linking valve to left door.

(3)Adjustment of nose gear door sequence valve control
(Ref. Fig. 502)

(a)Adjustment of spring rod linking nose gear leg hinge fitting to bellcrank.

1 Nose gear downlocked. Make certain that it is possible to rig bellcrank with rigging pin 98A32301010000. If not possible, adjust length of spring rod until pin can be readily inserted into bellcrank.
CAUTION : CHECK THAT ROD END COMES AGAINST STOP AND THAT ROD IS INSTALLED WITHOUT BEING FORCED.

2 Tighten and safety rod end fittings.

3 Remove rigging pin 98A32301010000.

(b)Adjustment of rod linking bellcrank to nose gear uplock assembly lever.

1 Nose gear leg downlocked. Rig bellcrank with rigging pin 98A32301010000.

2 Make certain that it is possible to rig uplock assembly lever with rigging pin 98A32301011000. If not possible, adjust length of rod until pin can be readily inserted into nose gear uplock assembly.

3 Fully tighten and safety rod end fittings.

4 Remove rigging pins 98A32301010000 and 98A32301011000.

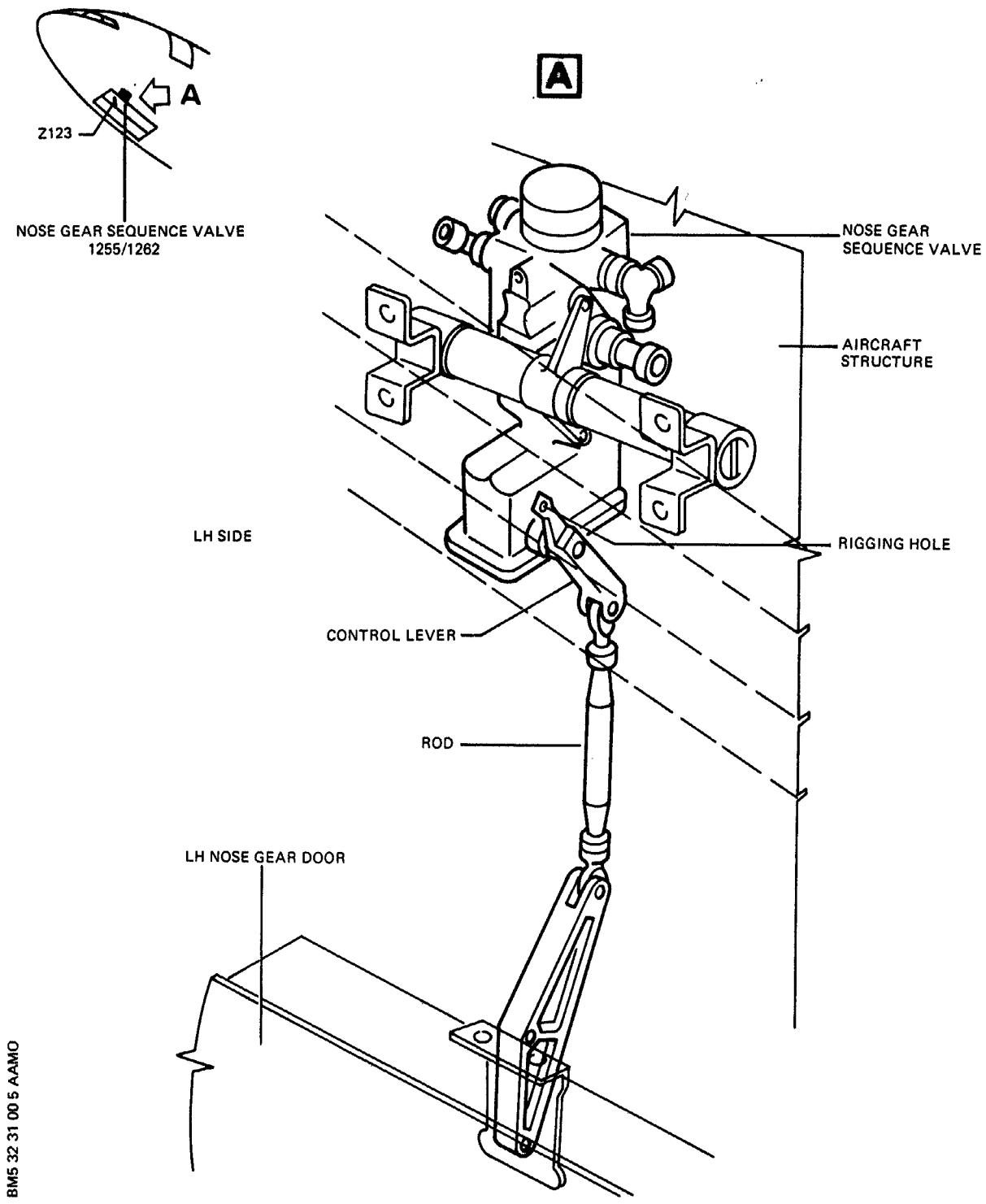
(4)Adjustment of left and right main gear sequence valve control

R (Ref. Fig. 503)

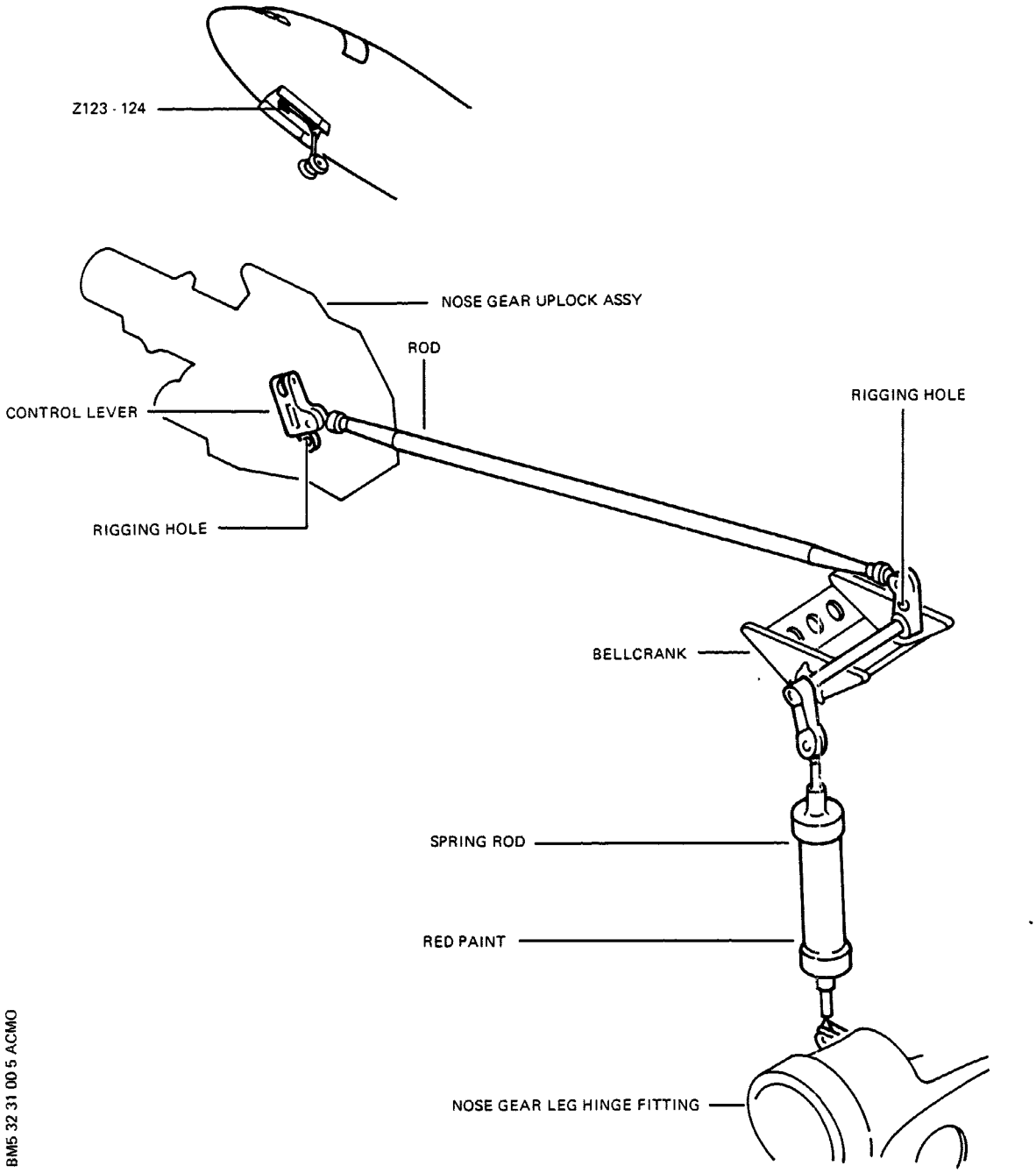
(a)Adjustment of rod (1) linking left main gear door to lever (2).

1 Maintain left gear door open, actuating cylinder rod in the fully extended position.

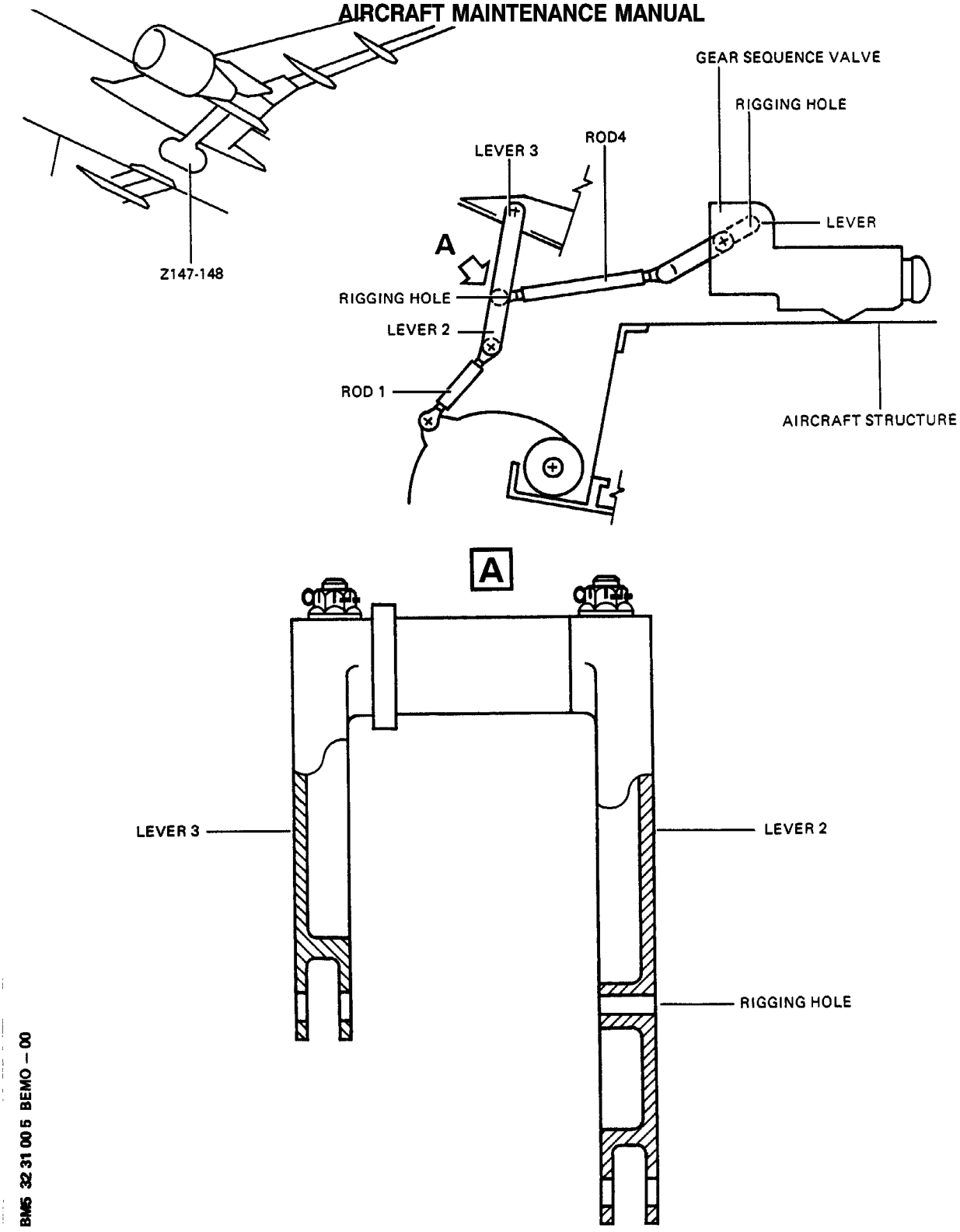
2 Make certain that it is possible to rig lever (2) with rigging pin



Nose Gear - Adjustment of Gear Sequence Valve Control
Figure 501



Nose Gear - Adjustment of Door Sequence Valve Control
Figure 502



Main Gears - Adjustment of Gear Sequence Valve Control
Figure 503

R

98A32101505000. If not possible, adjust length of rod (1) until pin can be readily inserted into lever (2) and side plates.

3 Tighten and safety rod (1) end fittings.

4 Remove rigging pin 98A32101505000.

(b)Adjustment of rod (4) linking lever (3) to left gear sequence valve.

1 Rig lever (2) to side plates with rigging pin 98A32101505000.

2 Make certain that it is possible to rig valve lever with rigging pin 98A32301018000. If not possible, adjust length of rod (4) until pin can be readily inserted into valve.

3 Tighten and safety rod (4) end fittings.

4 Remove rigging pins 98A32101505000 and 98A32301018000.

(c)Adjustment of rod linking right gear door to lever (2).

Proceed as for rod linking lever to left main gear door.

(d)Adjustment of rod linking lever (3) to right gear sequence valve.

Proceed as for rod linking lever to left gear sequence valve.

(5)Adjustment of main gear door sequence valve control

(Ref. Fig. 504)

NOTE : Spring rod is pre-adjusted ; no further adjustment is required at installation.

(6)Adjustment of door ground opening control

R (Ref. Fig. 505)

(Ref. Fig. 506)

(a)Adjustment of nose gear door ground opening control

NOTE : As adjustment procedures for right and left door opening controls are identical, only adjustment procedure of left door opening control is described here.

CAUTION : THIS ADJUSTMENT SHALL BE PERFORMED WITH NOSE GEAR DOORS OPEN, GREEN HYDRAULIC SYSTEM DEPRESSURIZED AND SAFETY COLLARS INSTALLED ON NOSE GEAR DOOR ACTUATING CYLINDERS.

NOTE : Torque shaft initial stop-to-stop travel is 40 ±2°.

1 Adjustment of nose gear door ground opening control handle

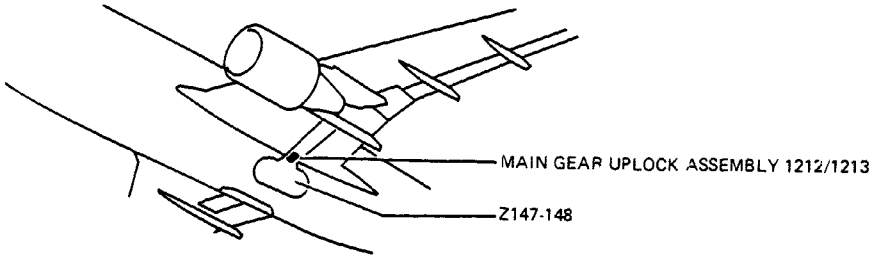
- nose gear door ground opening control handle in CLOSED position.
- adjust rod (4) to achieve clearance of 4 +2°/-0° before detent bellcranks (5) and (6) come into contact.
- place control handle in OPENED position, make certain that torque shaft contacts stop "B", and that uplock hook is released.
- tighten and safety rod (4) end fittings.

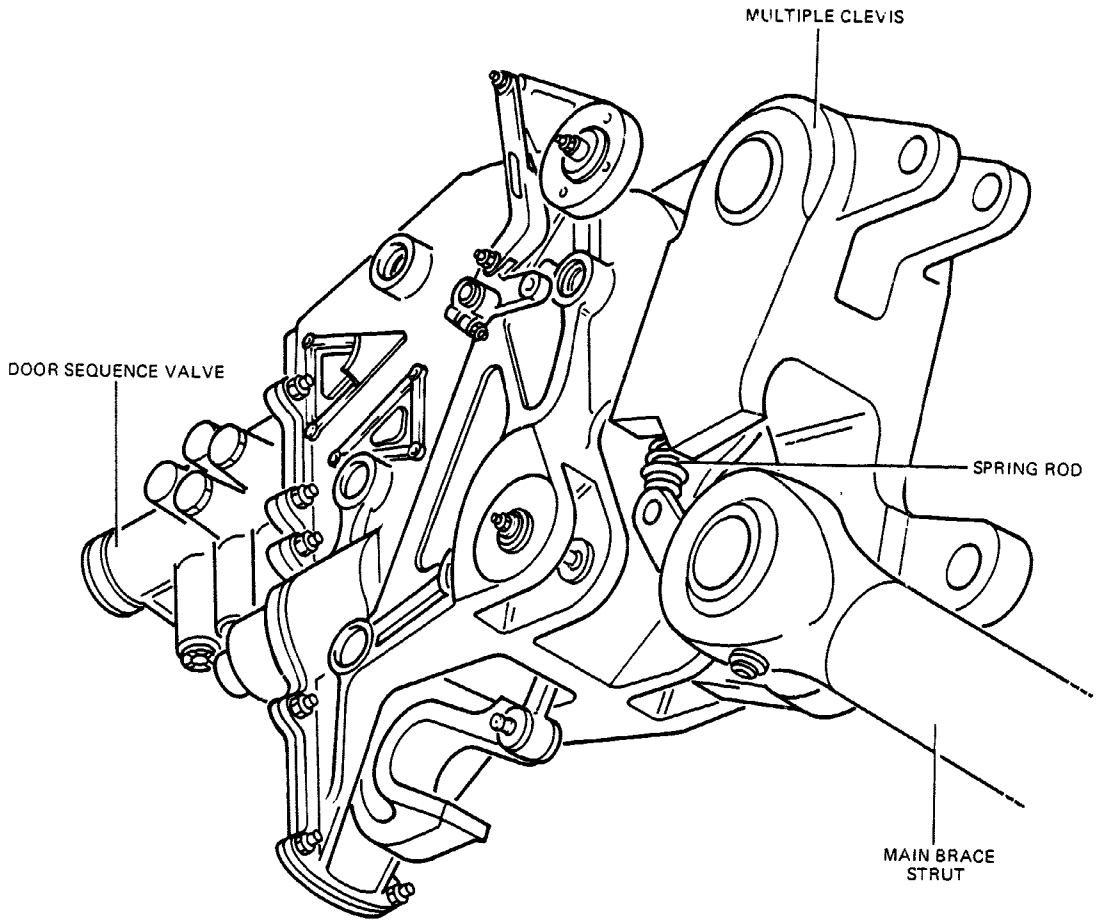
2 Adjustment of uplock release control linkage

- nose gear door ground opening control handle in CLOSED position.
- On uplock assembly make certain that it is possible to rig door uplock hook bellcrank (2) in locked position with rigging pin 98A32301000000 and that torque shaft contacts stop "A".
- adjust length of rod (3) until pin can be readily inserted into uplock assembly.
- Remove rigging pin 98A32301000000.
- Tighten and safety rod (3) end fittings.

3 Adjustment of nose gear door ground opening bypass valve control

- nose gear door ground opening control handle in OPENED position.
- fully engage rigging pin 98A32201011000 in bypass valve slide valve.
- adjust length of rod (7) to maintain torque shaft in contact with stop "B" and rigging pin in contact with slide valve.





Main Gears - Adjustment of Door Sequence Valve Control
Figure 504

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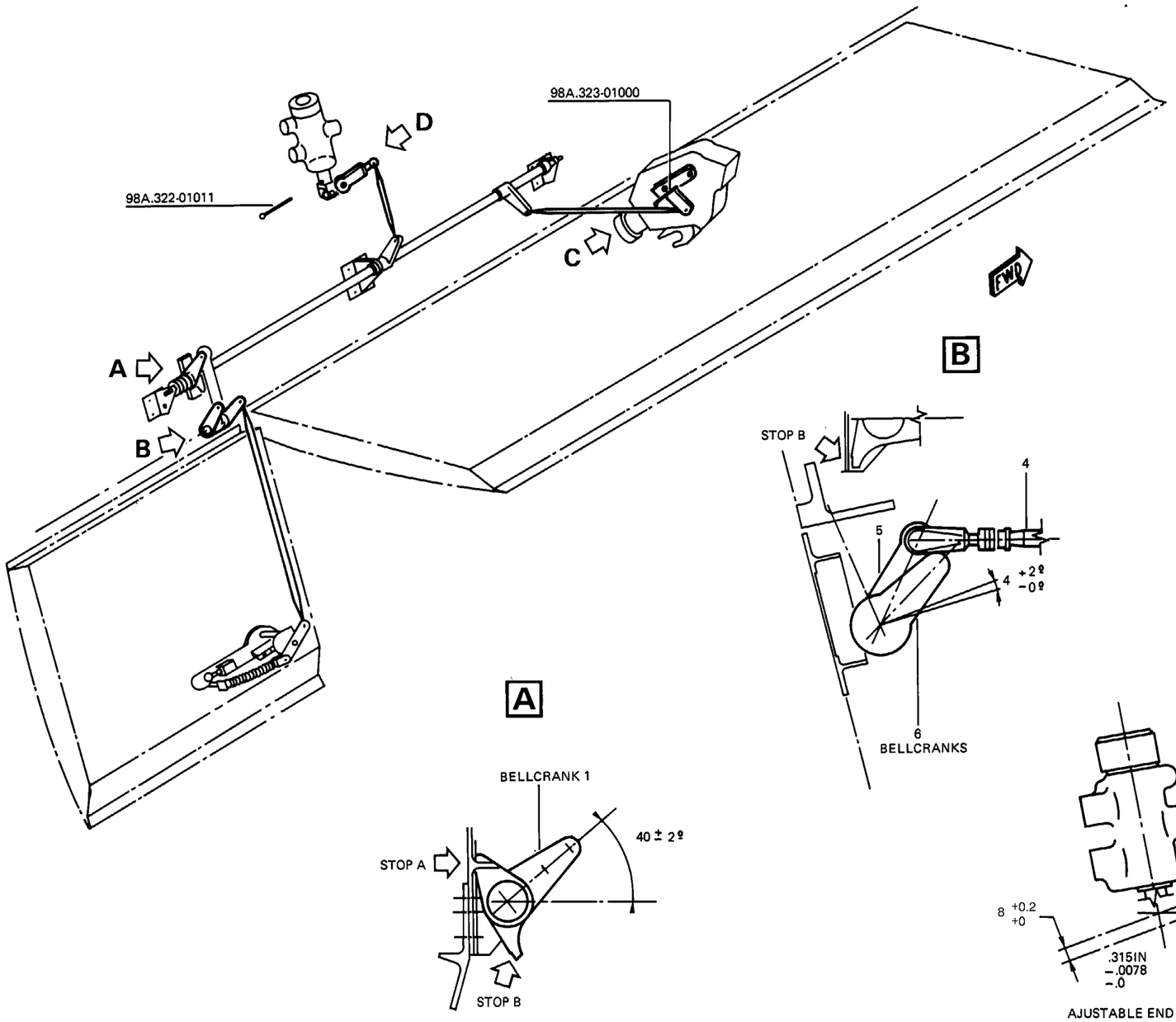

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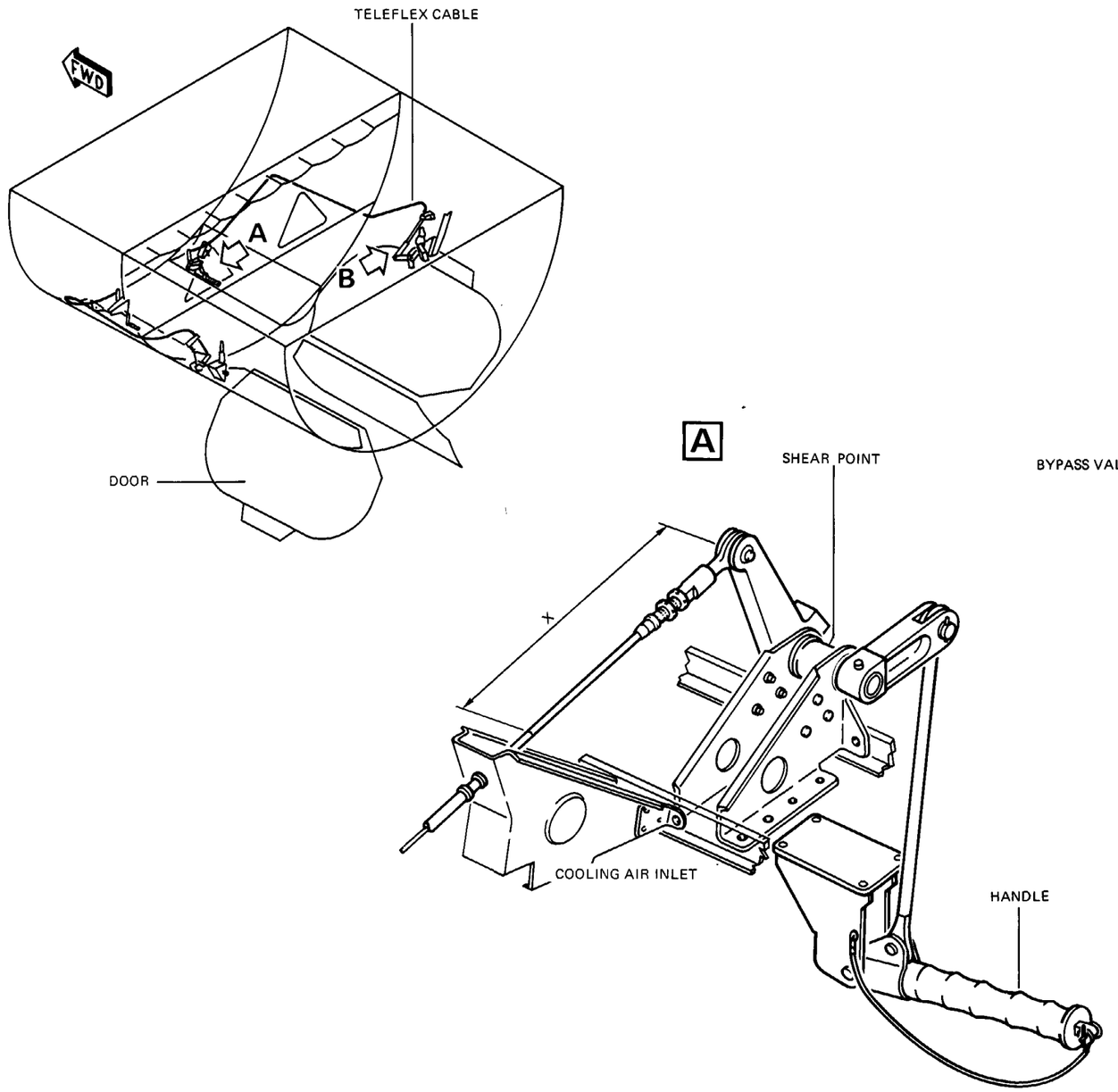
Adjustment of Nose Gear Door Ground Opening Control
Figure 505



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R

Adjustment of Main Gear Door Ground Opening Control
Figure 506

- place nose gear door ground opening control handle in CLOSED position.
- check that slide valve travel is 8 +0, +0.2 (0.31 in.) and if required adjust bellcrank (8) adjustable end fitting and rod (7) to obtain correct slide valve travel.
- remove rigging pin 98A32201011000.
- tighten and safety rod (7) end fittings and bellcrank (8) adjustable end fittings.
- actuate control handle several times and check for correct operation.

R (b)Adjustment of main gear door ground opening control

R 1 Place main gear door ground opening control handle in CLOSED position (handle horizontal).

R - check and if necessary, adjust sliding end fittings of teleflex cable to dimension X : 210 mm (8.274 in.).

R - make certain that it is possible to rig uplock input lever with pin 98A32301001000. If not possible, adjust length of teleflex cable until pin can be readily inserted into uplock assembly.

2 Adjustment of bypass valve (1) control

- place main gear door ground opening control handle in OPENED position (handle vertical).
- install rigging pin 98A32201011000 in bypass valve slide valve. Adjust length of rod (2) until pin is in contact with bypass valve liner.
- place main gear door ground opening control handle in CLOSED position. Check that slide valve travel is 8 + 0, + 0.2 mm (0.31 in.) and if required adjust bellcrank (3) adjustable end fitting to obtain correct slide valve travel.
- if necessary again adjust rod (2) to obtain preceding adjustment.
- remove rigging pin 98A32201011000.
- tighten and safety rod (2) and bellcrank (3) end fittings.
- actuate control handle several times and check for correct operation.

(7)Test

Carry out a gear Normal extension and retraction functional test.

NOTE : After door ground opening control adjustment has been carried out, only door ground opening and closing test is required.

(8)Close Up

(a)Make certain that working area is clean and clear of tools and miscellaneous items of equipment,

WARNING : MAKE CERTAIN THAT THE DOOR TRAVEL RANGES ARE CLEAR.

(b)Close nose and main gear doors (Ref. 32-12-11, P. Block 301 or 32-22-11, P. Block 301).

(c)Remove warning notices.

(d)Close access doors, remove access platform and safety barriers.

(e)Remove all ground handling and maintenance equipment standard and special tools, together with ground power and replenishing equipment, all access equipment and miscellaneous items.

2. Operational Test

WARNING : CHECK THAT LANDING GEAR SAFETIES INCLUDING WHEEL CHOCKS ARE IN POSITION.

A. Reason for the Job

Test of landing gear extension and retraction system electrical control and indicating circuit.

B. Equipment and Materials

ITEM	DESIGNATION
Referenced Procedure - 24-41-00, P. Block 301	AC External Power Control

C. Procedure

(1)Job set-up

(a)On panel 4VU

- make certain that landing gear control lever is in DOWN position.

(b)Between First Officer's and Third Occupant's seats

- make certain that landing gear Free Fall extension control handle is in Normal position.

(c)Energize aircraft electrical network (Ref. 24-41-00, P. Block 301). Make certain that electronics racks ventilation is correct.

(d)Make certain that circuit breakers GB and GA associated with extension and retraction circuits and circuit breakers LP associated with annunciator light test circuits are closed.

- on panel 76VU, check that green arrows on annunciators 171GB, 173GB and 175GB are on (gears downlocked).
- on panel 400VU, check that green arrows on annunciators 165GB, 166GB and 169GB are on.

(2)Test

Test of gear extension and retraction control and indicating electrical circuit.

ACTION	RESULT
1. On panel 436VU, - place DIM-BRT-TEST switch in TEST position.	On panel 400VU, - DOOR legends on annunciators 164GB, 166GB and 168GB come on amber - on annunciators 165GB, 167GB and 169GB, red UNLK legends and green arrows come on. On panel 76VU, - DOOR legends on annunciators 170GB, 172GB and 174GB come on amber - on annunciators 171GB, 173GB and 175GB, red UNLK legends and green arrows come on.

ACTION	RESULT
2. On panel 436VU, - place DIM-BRT-TEST switch in BRT position.	On panel 76VU, - only green arrows on annunciators 165GB, 167GB and 169GB remain on. On panel 400VU, - only green arrows on annunciators 171GB, 173GB and 175GB remain on.
3. Place DIM-BRT-TEST switch in DIM position.	Green arrows are dimmed.
4. Place DIM-BRT-TEST switch in BRT position.	Brightness of green arrows returns to normal.
5. Place landing gear control lever in Neutral position.	On panels 400VU and 76VU, - all red UNLK legends come on (lever position different from gear position). - Green arrows remain on.
6. Place landing gear control lever in Down position.	- All six red UNLK legends go off. - Green arrows remain on.

(3)Close-up
(a)De-energize the aircraft electrical network (Ref. 24-41-00, P. Block 301).

3. Functional Test

WARNING : CHECK THAT LANDING GEAR GROUND SAFETIES INCLUDING WHEEL CHOCKS ARE IN POSITION.
BEFORE APPLYING OR RELIEVING HYDRAULIC SYSTEM PRESSURE, MAKE CERTAIN THAT THE TRAVEL RANGES OF THE CONTROL SURFACES ARE CLEAR.
BEFORE PRESSURIZING HYDRAULIC SYSTEMS, CHECK THAT ALL CONTROLS ARE SET TO CORRESPOND WITH THE ACTUAL POSITION OF THE SURFACES THEY OPERATE.
BEFORE POWER IS SUPPLIED TO THE AIRCRAFT MAKE CERTAIN THAT ELECTRICAL CIRCUITS UPON WHICH WORK IS IN PROGRESS ARE ISOLATED.
BEFORE PRESSURIZING HYDRAULIC SYSTEMS, MAKE CERTAIN THAT HYDRAULIC SYSTEM UNDER MAINTENANCE HAS BEEN ISOLATED.

A. Reasons for the Job

(1)Annunciator light test (Ref. Operational Test, Paragraph 2).
(2)Door ground opening test.
(3)Door ground closing test.
(4)Gear Normal retraction/extension test.
(5)Gear retraction inhibition test on SYS1 and SYS2 with shock absorbers compressed and bogie beams not aligned : aircraft resting on its wheels (test performed with tool set P/N 86013595310001).
(6)Nose gear test - Main gear on ground.
(7)Gear retraction system pressurization (aircraft on ground).

B. Equipment and Materials

	ITEM	DESIGNATION
	(1)	Cart - Ground Power Supply and Preliminary Testing 150 1/min. (39.6 US GPM) Hydraulic
	(2)860135953100001 amend A	Test Set - Landing Gear Safety Relay Control Simulator
	or 860135953100001 amend B	
	(3)98A32101500000	Safety Collar - MLG Door Actuating Cylinder
R	(4)C47281-1000	Safety Collar
	(5)	Safety Barriers
	(6)	Access Platform
	(7)	Warning Notice
	Referenced Procedures	
	- 07-11-00, P. Block 1	Jacking for Aircraft Maintenance Operations
	- 24-41-00, P. Block 301	AC External Power Control
	- 29-14-00, P. Block 301	Hydraulic Reservoir Pressurizing System
	- 29-10-00, P. Block 301	Main Hydraulic Power - Pressurization/Depressurization
	- 32-00-00, P. Block 501	Landing Gear

C. Procedure

(1)Job set-up
(a)Jack up the aircraft until wheels are clear of ground (Ref. 07-11-00,

P. Block 1).

(b)On panel 4VU
- make certain that landing gear control lever is in DOWN position.

(c)Between First Officer's and Third Occupant's seats
- make certain that landing gear Free Fall extension control handle is in Normal position.

(d)Connect hydraulic ground power cart to Green hydraulic system (Ref. 29-10-00, P. Block 301).

(e)Energize the aircraft electrical network. (Ref. 24-41-00, P. Block 301). Make certain that electronics racks ventilation is correct.

(f)Make certain that circuit breakers GB and GA associated with extension and retraction circuits and circuit breakers LP associated with annunciator light test circuit are closed.
- On panel 76VU, on annunciators 171GB, 173GB and 175GB, check that green arrows are on (gears downlocked).
- On panel 400VU, on annunciators 165GB, 167GB and 169GB, check that green arrows are on.

(g)Check that nose and main gear doors are closed.

(h)Position access platform.

D. Tests
(1)Annunciator light test (Ref. Operational Test, Paragraph 2.).
(2)Door Ground Opening Test
NOTE : This test can be performed with aircraft on its wheels.
WARNING : MAKE CERTAIN THAT THE DOOR TRAVEL RANGES ARE CLEAR.
(a)Open main gear door
NOTE : Main gear door ground opening control handles are located on air conditioning pack cooling air inlets.
1 Open door ground opening control access door.
2 Place door ground opening control handle in **OPENED** position as follows :
- remove pin from handle.
- press pushbutton and move handle downwards.
- release pushbutton ; handle automatically locks at end of this maneuver.
3 Install pin.
4 Check that door opens.
NOTE : The doors may not fully open under their own weight. In such case they must be assisted manually to fully open position.
5 Install safety collar on door actuating cylinder.
6 Repeat above mentioned operations for other main gear door.
7 On panels 76VU and 400VU, **DOOR** legends corresponding to manually opened door come on amber.
(b)Nose gear door ground opening test
1 Take care to comply with instructions on placard adjacent to door ground opening control.
WARNING : **FOR SAFETY REASONS STAND AFT OF GEAR LEG WHEN OPERATING DOOR GROUND OPENING CONTROL.**
2 Place door ground opening control handle in **OPENED** position and install safety pin to immobilize handle.
3 Check that door opens.
NOTE : The doors may not fully open under their own weight. In such case they must be assisted manually to fully open position.
4 Install safety collar on nose gear door actuating cylinder.
5 Repeat above mentioned operations for other nose gear door.
6 On panels 76VU and 400VU, **DOOR** legends corresponding to nose gear doors come on amber.

(3)Door ground closing test

NOTE : This test can be performed with aircraft on its wheels.

(a)Main gear door ground closing.

1 Make certain that Green hydraulic reservoir is pressurized (Ref. 29-14-00, P. Block 301).

2 Check that door ground opening control handle is in **OPENED** position and that Green hydraulic system is depressurized.

R 3 Remove safety collar from door actuating cylinder which is tested.

R WARNING : **IF OTHER GEAR DOORS ARE OPEN, MAKE CERTAIN THAT SAFETY COLLARS ARE INSTALLED ON ACTUATING CYLINDERS AND THAT DOOR GROUND OPENING CONTROL HANDLES ARE IN OPENED POSITION. INSTALL SAFETY PINS FITTED WITH STREAMERS.**

4 Pressurize Green hydraulic system (Ref. 29-10-00, P. Block 301).

WARNING : **MAKE CERTAIN THAT THE DOOR TRAVEL RANGES ARE CLEAR.**

5 Place door ground opening control handle in **CLOSED** position (handle in horizontal position) as follows :

- remove safety pin
- press pushbutton and move handle upwards. Handle automatically locks. Install safety pin to immobilize handle
- check that door closes and uplocks.

WARNING : **IF DOOR FAILS TO CLOSE, GEAR DOOR GROUND OPENING CONTROL HANDLES SHALL BE RETURNED TO OPENED POSITION (PROBABLE CAUSE : INSUFFICIENT PRESSURE IN THE LANDING GEAR HYDRAULIC SYSTEM).**

- on panels 76VU and 400VU amber **DOOR** legends corresponding to main gear doors go off.

6 Close access door.

7 Depressurize Green hydraulic system (Ref. 29-10-00, P. Block 301).

(b)Nose gear door ground closing

1 Make certain that Green hydraulic reservoir is pressurized (Ref. 29-14-00, P. Block 301).

2 Make certain that safety pins are inserted and that door ground opening control handle is in **OPENED** position. Check that Green hydraulic system is depressurized.

R 3 Remove safety collar from door actuating cylinder which is tested.

WARNING : **IF OTHER GEAR DOORS ARE OPEN, MAKE CERTAIN THAT SAFETY COLLARS ARE INSTALLED ON NOSE GEAR DOOR ACTUATING CYLINDERS AND THAT DOOR GROUND OPENING CONTROL LEVERS ARE HELD IN OPENED POSITION BY SAFETY PINS EQUIPPED WITH RED STREAMERS.**

4 Pressurize Green hydraulic system (Ref. 29-10-00, P. Block 301).

WARNING : **MAKE CERTAIN THAT THE DOOR TRAVEL RANGES ARE CLEAR.**

5 Take care to comply with instructions on placard adjacent to door ground opening control.

WARNING : **FOR SAFETY REASONS, STAND AFT OF GEAR LEG WHEN OPERATING DOOR GROUND OPENING CONTROL.**

6 Place door ground opening control lever in **CLOSED** position.

- remove safety pin
- release control catch
- place door ground opening control handle in **CLOSED** position
- stow safety pin on handle
- check that door closes and uplocks.

7 Repeat operation described at para. 6 for other nose gear door.
8 On panels 76VU and 400VU amber DOOR legends go off when the two doors are uplocked.
9 Depressurize Green hydraulic system (Ref. 29-10-00, P. Block 301).

(4)Gear normal retraction/extension test

NOTE : This test is performed with the aircraft on jacks.

R CAUTION : FOR LANDING GEAR EXTENSION AND RETRACTION TESTS, THE
R SAFETY STAY MUST NOT BE INSTALLED. DAMAGE CAN OCCUR TO THE
R AIRCRAFT FUSELAGE WHEN THE AIRCRAFT MOVES DURING THE TESTS.

WARNING : MAKE CERTAIN THAT THE DOOR TRAVEL RANGES ARE CLEAR.

WARNING 1 : UNDER NO CIRCUMSTANCES WHATSOEVER SHOULD LANDING GEAR RETRACTION/EXTENSION TESTS BE CONDUCTED WHILST ENGINES ARE REMOVED FROM THE AIRCRAFT (ESPECIALLY ONE ENGINE REMOVED, LANDING GEAR FREE FALL EXTENSION TEST) DUE TO THE DANGER OF TIPPING OFF JACKS.

WARNING 2 : IF ACCESS THROUGH FWD AND AFT CARGO DOORS IS REQUIRED DURING LANDING GEAR RETRACTION/EXTENSION TESTS, CARGO DOORS SHALL BE OPENED ONLY AS FAR AS VERTICAL HANGING POSITION TO AVOID STRESSING (FATIGUE) ON ACTUATOR MOUNTS.

(a)Remove safety pins from main and nose gear struts.

(b)Make certain that Green hydraulic reservoir is pressurized (Ref. 29-14-00, P. Block 301).

(c)Pressurize Green hydraulic system (Ref. 29-10-00, P. Block 301).

(d)On panels 76VU and 400VU, check that annunciators are in the following configuration :
- amber DOOR legends off
- red UNLK legends off
- green arrows on (gears downlocked).

(e)Gear normal retraction test

NOTE : Perform retraction test first with SYS1, then with SYS2.

NOTE : Depending on aircraft configuration, red arrow on landing gear control lever may come on when gears are not downlocked.

ACTION	RESULT
(1)On panel 4VU, - place landing gear control lever unit in UP position.	On panels 76VU and 400VU, the three red UNLK legends come on. The following sequence occurs (all gears) : - doors unlock and open - gear downlocks release and gears retract - gears uplock - doors close and uplock. On panels 76VU and 400VU, on annunciators check that legends come on or go off in the following order - the three DOOR legends come on amber (doors unlocked and open) - the three green arrows go off (downlock release and retraction of gears) - the three red UNLK legends go off (gears uplocked) - the three amber DOOR legends go

ACTION	RESULT
	off (doors closed and uplocked) NOTE : After gear retraction all annunciators are off.
(2)On panel 4VU, - place landing gear control lever in Neutral position.	No change.

(f)Gear normal extension test

R NOTE : Perform extension test first with SYS1, then with SYS2.

ACTION	RESULT
(1)On panel 4VU, - place landing gear control lever in DOWN position.	On panels 76VU and 400VU, the three red UNLK legends come on. The following sequence occurs (all gears) : - doors unlock and open - uplock release and extension of gears - gears downlock - doors close and uplock. On panels 76VU and 400VU, on annunciators check that legends come on and go off in the following order - the three DOOR legends come on amber (doors unlocked and open) - the three green arrows come on and three red UNLK legends go off (gears downlocked) - the three amber DOOR legends go off (doors closed and uplocked).

NOTE : After gear extension, only the three green arrows remain on (gear downlocked).

(g)Install safety pins on main and nose gear struts.

(h)On panel 4VU,
make certain that landing gear control lever is in DOWN position.

(j)Depressurize Green hydraulic system and disconnect hydraulic ground power cart (Ref. 29-10-00, P. Block 301).

(k)De-energize the aircraft electrical network (Ref. 24-41-00, P. Block 301).
WARNING : MAKE CERTAIN THAT AREA UNDER THE AIRCRAFT IS CLEAR.

(l)Lower the aircraft onto its wheel (Ref. 07-11-00, P. Block 1).

(5)Gear retraction inhibition test on SYS1 and SYS2 with shock absorbers compressed and bogie beams not aligned.

AIRCRAFT CONFIGURATION :
- Aircraft on its wheels.
- Landing gear doors closed.
- Safety pins installed on main and nose gears.

NOTE : This test must be performed with Green hydraulic system depressurized.

(a)Connect main landing gear safety relay control simulator test set (Ref. 32-00-00, P. Block 501).
On landing gear safety relay control simulator test set
- place SIMULATION FLIGHT/GROUND CONFIGURATIONS switches in FLIGHT position
- place SIMULATION LANDING GEAR DOWNLOCKED switches in DOWNLOCKED position
- place TEST/NORMAL switches (BOGIE BEAMS FLIGHT/GROUND switches) in NORMAL position (GROUND position).

(b)Make certain that landing gear control lever is in DOWN position.

(c)Test

ACTION	RESULT
INHIBITION WITH SHOCK ABSORBERS COMPRESSED	
1. On panel 400VU - Place LDG GEAR/POSITION DET/SYS1/ SYS2 switch 10GA in SYS1 position. On tool set - place switch 8GA/9GA in test position (FLIGHT position)	
a. On tool set, place switch 65GB in GROUND position.	On panel 4VU - check that control lever cannot be placed in UP position.
b. Place switch 65GB in FLIGHT position and 55GB in GROUND position.	On panel 4VU - check that control lever cannot be placed in UP position.
c. Place 55GB in FLIGHT position and 64GB in GROUND position.	On panel 4VU - check that control lever cannot be placed in UP position.
d. Place 64GB in FLIGHT position.	- anti-retraction deactivated (retraction permitted)
On tool set - place switch 8GA/9GA in NORMAL position (GROUND position)	- Anti-retraction operational (Retraction prevented)
2. On panel 400VU - Place LDG GEAR/POSITION DET/ SYS1/SYS2 switch 10GA in SYS2 position. On tool set - place switch 11GA/12GA in TEST position (FLIGHT position)	

ACTION	RESULT
a. On tool set, place switch 63GB in GROUND position.	On panel 4VU - check that control lever cannot be placed in UP position.
b. Place switch 63GB in FLIGHT position and 82GB in GROUND position.	On panel 4VU - check that control lever cannot be placed in UP position.
c. Place 82GB in FLIGHT position and 62GB in GROUND position.	On panel 4VU - check that control lever cannot be placed in UP position (anti-retraction operational).
d. Place 62GB in FLIGHT position.	- anti-retraction deactivated (retraction permitted)
On tool set - place switch 11GA/12GA in NORMAL position (GROUND position)	- anti-retraction operational (retraction prevented)

INHIBITION WITH BOGIE BEAM NOT ALIGNED

3. On panel 400VU - Place LDG GEAR/POSITION DET/ SYS1/SYS2 switch 10GA in SYS2 position.	
a. On tool set - place switch 11GA/12GA in TEST position (FLIGHT position).	On panel 4VU - Check that control lever can be placed in UP position.
b. Place switch 11GA/12GA in NORMAL position (GROUND position).	On panel 4VU - check that control lever cannot be placed in UP position.
4. On panel 400VU - Place switch 10GA in SYS1 position.	
a. On tool set - place switch 8GA/9GA in TEST position (FLIGHT position).	On panel 4VU - Check that control lever can be placed in UP position.
b. Place switch 8GA/9GA in NORMAL position (GROUND position).	On panel 4VU - check that control lever cannot be placed in UP position.

(d)Disconnect landing gear safety relay control simulator test set (Ref. 32-00-00, P. Block 501).

(6)Nose gear test - Main gear on ground

WARNING : THE FOLLOWING TEST IS PERFORMED WITH MAIN GEAR ON GROUND. STRICTLY ADHERE TO THE FOLLOWING PROCEDURE AND TAKE ALL NECESSARY SAFETY PRECAUTIONS TO PREVENT INJURY TO PERSONNEL OR DAMAGE TO EQUIPMENT.

(a)Connect main landing gear safety relay control simulator test set without connecting connectors 40GB-A and 79GB-A (Ref. 32-00-00, P. Block 501).
On safety relay control simulator test set
- Place SIMULATION FLIGHT/GROUND CONFIGURATIONS switches in GROUND position.
- Place TEST/NORMAL switches (BOGIE BEAMS FLIGHT/GROUND switches) in NORMAL position (GROUND position).
- Place SIMULATION/LANDING GEAR DOWNLOCKED switches in DOWNLOCKED position.
- Place FLIGHT/GROUND switch 3XG in GROUND position.

(b)Make certain that safety pins are installed on main and nose gear struts.

(c)Remove chocks from main gear wheels.

(d)Make certain that PARKING BRAKE is in Normal (released) position).

(e)Jack up the aircraft at FR10 to obtain 60 mm (2.362 in.) minimum nose wheel-to-ground clearance (Ref. 07-11-00, P. Block 1).
WARNING : VERTICAL LOAD AT FR10 SHALL NOT EXCEED 12000 daN.

(f)On panel 9VU
- place PARKING BRAKE control handle in on (applied) position and install chocks at main gear wheels.

(g)Open, safety and tag the following circuit breaker :

PANEL	SERVICE	IDENT.	LOCATION
133VU	HYDRAULIC/NOSE/WHEEL/STRG	1GC	333/T53

WARNING : MAKE CERTAIN THAT NOSE GEAR SHOCK ABSORBER IS FULLY EXTENDED :
SLIDING TUBE STAND-OUT DIMENSION BETWEEN 466 AND 468 mm (18.346 and 18.424 in.).
MAKE CERTAIN THAT NOSE WHEELS ARE CENTERED : RED INDEX ON NOSE GEAR ROTATING SECTION ALIGNED WITH TRIANGULAR CUTOUT ON CABLE PROTECTIVE COVER AT FRONT OF NOSE GEAR.

(h)Open both main gear doors by means of door ground opening control handles (Ref. Functional Test, Paragraph (2) (a)).

(j)Install safety collars on main gear door actuating cylinders.

(k)Remove safety pin from nose gear telescopic drag strut.
WARNING : MAKE CERTAIN THAT SAFETY PINS ARE IN POSITION ON BOTH MAIN GEARS.
MAKE CERTAIN THAT DOOR TRAVEL RANGES ARE CLEAR.

(l)Install safety barriers prohibiting access to nose gear travel range.

(m)Energize the aircraft electrical network (Ref. 24-41-00, P. Block 301). Make certain that electronics racks ventilation is correct.

R (n)Pressurize Green hydraulic system (Ref. 29-10-00, P. Block 301 or
R 29-21-00, P. Block 301).

(p)On landing gear control lever switch unit 2GA, lift protective flap.
WARNING : MAKE CERTAIN THAT NOSE GEAR SHOCK ABSORBER IS FULLY EXTENDED AND THAT NOSE WHEELS ARE CENTERED.
(q)On landing gear safety relay control simulator test set, place :
- switch 8GA/9GA and switch 11GA/12GA in TEST position (FLIGHT position)
- the 6 SIMULATION FLIGHT/GROUND CONFIGURATIONS switches in FLIGHT position.
(r)Test

ACTION	RESULT
1. On panel 400VU Place landing gear control lever in "UP" position	- Check that nose gear correctly retracts - On panels 76VU and 400VU, check that nose gear indicating is correct (center annunciators).
2. Carry out required number of cycles.	
3. Place landing gear control lever in DOWN position.	- Check that landing gears are correctly downlocked (3 green arrows on).

(s)Disconnect landing gear safety relay control simulator test set (Ref. 32-00-00, P. Block 501).
R (t)Depressurize Green hydraulic system (Ref. 29-10-00, P. Block 301 or
R 29-21-00, P. Block 301).
(u)Install safety pin on nose gear telescopic drag strut.
(v)ONot applicable
(w)Not applicable.
(x)Make certain that main gear door travel ranges are clear.
(y)Make certain that door ground opening control is in OPENED position.
(z)Remove safety collars from main gear door actuating cylinders.
R (aa)Pressurize Green hydraulic system (Ref. 29-10-00, P. Block 301 or
R 29-21-00, P. Block 301).
(ab)Place door ground opening control handle in CLOSED position (Refer to Functional Test, Paragraph (3) (a)).
(ac)Depressurize Green hydraulic system and disconnect hydraulic ground
R power cart (Ref. 29-10-00, P. Block 301 or 29-21-00, P. Block 301).
(ad)De-energize the aircraft electrical network.
(ae)Remove safety clip and tag and close circuit breaker 1GC.
(af)On panel 9VU
- place PARKING BRAKE control handle in Normal (released) position.
(ag)Lower the aircraft onto its wheels (Ref. 07-11-00, P. Block 1).

(7)Gear retraction system pressurization (aircraft on ground).

WARNING : CHECK THAT THE LANDING GEAR GROUND SAFETIES INCLUDING WHEEL CHOCKS ARE IN POSITION.
BEFORE APPLYING OR RELIEVING HYDRAULIC SYSTEM PRESSURE, MAKE CERTAIN THAT THE TRAVEL RANGES OF THE CONTROL SURFACES ARE CLEAR.
BEFORE PRESSURIZING HYDRAULIC SYSTEMS, CHECK THAT ALL CONTROLS ARE SET TO CORRESPOND WITH THE ACTUAL POSITION OF THE SERVICES THEY OPERATE.

(a)Reason for the job

WARNING : THIS PROCEDURE FOR BLEEDING THE LANDING GEAR RETRACTION SYSTEM FOLLOWING TOTAL LOSS OF FLUID (GREEN SYSTEM) IN FLIGHT OR CHECKING FOR LEAKAGE AFTER REPLACEMENT OF A COMPONENT IN THE GEAR RETRACTION SYSTEM IS USED ONLY WHEN NO AIRCRAFT JACKS ARE AVAILABLE.

(b)Equipment and Materials

ITEM	DESIGNATION
(1)860135953100001 amend A or 860135953100001 amend B	Test Set - Landing Gear Safety Relay Control Simulator

ITEM	DESIGNATION
Referenced Procedures	
- 24-41-00, P. Block 301	AC External Power Control
- 29-10-00, P. Block 301	Main Hydraulic Power - Pressurization/ Depressurization
- 29-14-00, P. Block 301	Hydraulic Reservoir Pressurizing System
- 29-21-00, P. Block 301	Green Auxiliary Power
R - 32-00-00, P. Block 501	Landing Gear
R - 32-22-11, P. Block 301	Nose Gear Main Door

(c)Procedure

WARNING : THE FOLLOWING TEST IS PERFORMED WITH AIRCRAFT RESTING ON ITS WHEELS. STRICTLY ADHERE TO THE PROCEDURE DETAILED BELOW TAKE ALL THE NECESSARY SAFETY PRECAUTIONS TO AVOID INJURY TO PERSONNEL OR DAMAGE TO EQUIPMENT.

(d)Connect main landing gear safety relay control simulator test set (Ref. 32-00-00, P. Block 501).
On safety relay control simulator test set
- Place SIMULATION FLIGHT/GROUND CONFIGURATIONS switches in GROUND position.
- Place TEST/NORMAL switches (BOGIE BEAMS FLIGHT/GROUND switches) in NORMAL position (GROUND position).
- Place SIMULATION/LANDING GEAR DOWNLOCKED switches in DOWNLOCKED position.
- Place FLIGHT/GROUND switch 3XG in GROUND position.

AIRCRAFT CONFIGURATION

- Aircraft on its wheels
- Landing gear doors closed
- Safety pins installed on main and nose gears.

1 On panel 4VU,
- make certain that landing gear control lever is in **DOWN** position.

2 Between First Officer's and Third Occupant's seats
- make certain that landing gear Free Fall extension control handle is in Normal position.

WARNING : BEFORE INSTALLING THE GROUND SAFETY PINS, MAKE CERTAIN THAT THE LANDING GEAR IS DOWNLOCKED.
THIS IS ACHIEVED BY CHECKING THAT :
- IN FLIGHT COMPARTMENT, ON PANELS 400VU AND 76VU LH-NOSE-RH GREEN ARROWS ARE ON.
- DOWNLOCK VISUAL INDICATORS ARE VISIBLE ON WINGS (MAIN GEARS) AND ON TELESCOPIC DRAG STRUT (NOSE GEAR).

- Make certain that safety pins are installed on the nose gear telescopic drag strut and main gear lock link assembly.

WARNING : WHENEVER THE GROUND SAFETY PIN IS INSTALLED ON THE NOSE GEAR TELESCOPIC STRUT. IT IS NECESSARY TO OPEN THE NOSE GEAR DOORS (REF. 32-22-11, P. BLOCK 301) TO ALWAYS VISUALLY CHECK THAT :
- IT HAS COMPLETELY AND EASILY ROTATED THE FORK-TYPE LEVER OF THE GROUND LOCKING SYSTEM.
- ITS STOP FLANGE ABUTS AGAINTS THE HOUSING OF THE TELESCOPIC STRUT LOCKING SYSTEM (FULL INSERTION).
BEFORE PERFORMING THE PRESSURIZATION OF THE LANDING GEAR RETRACTION SYSTEM, THE NOSE GEAR DOORS MUST BE CLOSED (REF. 32-22-11, P. BLOCK 301).

3 Position safety barriers prohibiting access to nose and main gear door travel ranges.

4 Energize the aircraft electrical network (Ref. 24-41-00, P. Block 301).
Make certain that electronics racks ventilation is correct.

5 Make certain that Green hydraulic reservoir is pressurized (Ref. 29-14-00, P. Block 301).

6 Pressurize Green hydraulic system using Green electric pumps (Ref. 29-21-00, P. Block 301) or hydraulic ground power cart (Ref. 29-10-00, P. Block 301).

7 On landing gear safety relay control simulator test set, place :
- switch 8GA/9GA and switch 11GA/12GA in **TEST** position (FLIGHT position).
- the 6 **SIMULATION FLIGHT/GROUND CONFIGURATIONS** switches in **FLIGHT** position.

WARNING : CHECK THAT THE LANDING GEAR GROUND SAFETIES INCLUDING WHEEL CHOCKS ARE IN POSITION.

WARNING : MAKE CERTAIN THAT THE GEAR DOOR TRAVEL RANGES ARE CLEAR.

On panel 400 VU

8 Place landing gear control lever in **UP** position.
- Check that all doors open.

WARNING : MAKE CERTAIN THAT THE DOOR TRAVEL RANGES ARE CLEAR.

9 Place Landing gear control lever in **DOWN** position. Doors close.

11 Not applicable
12 Disconnect landing gear safety relay control simulator test set (Ref. 32-00-00, P. Block 501).
13 Not applicable
14 Shut down and disconnect hydraulic ground power cart.
15 De-energize the aircraft electrical network (Ref. 24-41-00, P. Block 301).

(8)Close-up
(a)Remove the ground safety pin.
WARNING : WHEN THE GROUND SAFETY PIN IS REMOVED, VISUALLY CHECK THE DOWN POSITION OF THE FORK-TYPE LEVER ON THE TELESCOPIC STRUT GROUND LOCKING SYSTEM.
(b)Remove safety barriers.
(c)Remove all ground handling and maintenance equipment, standard and special tools, together with ground power and replenishing equipment, all access equipment and miscellaneous items.

4. System Test

WARNING : CHECK THAT THE LANDING GEAR GROUND SAFETIES INCLUDING WHEEL CHOCKS ARE IN POSITION.
BEFORE APPLYING OR RELIEVING HYDRAULIC SYSTEM PRESSURE, MAKE CERTAIN THAT THE TRAVEL RANGES OF THE CONTROL SURFACES ARE CLEAR.
BEFORE PRESSURIZING HYDRAULIC SYSTEMS, CHECK THAT ALL CONTROLS ARE SET TO CORRESPOND WITH THE ACTUAL POSITION OF THE SERVICES THEY OPERATE.
BEFORE POWER IS SUPPLIED TO THE AIRCRAFT MAKE CERTAIN THAT ELECTRICAL CIRCUITS UPON WHICH WORK IS IN PROGRESS ARE ISOLATED.
BEFORE PRESSURIZING HYDRAULIC SYSTEMS, MAKE CERTAIN THAT HYDRAULIC SYSTEM UNDER MAINTENANCE HAS BEEN ISOLATED.

A. Reasons for the Job

(1)Annunciator light test (Ref. Operational Test, Paragraph C. (2)).
(2)Door ground opening test (Ref. Functional Test, Paragraph C. (3)).
(3)Door ground closing test (Ref. Functional Test, Paragraph C. (4)).
(4)Gear retraction inhibition test with shock absorbers compressed.
(5)Gear retraction inhibition test with nose wheels steering to left or right.
(6)Gear retraction inhibition test with main gear bogie beam not aligned.
(7)Gear Normal retraction test.
(8)Gear Normal extension test.

B. Equipment and Materials

	ITEM	DESIGNATION
	(1)	Cart - Ground Power, Supply and Prelimimary Testing 150 1/min. (39.6 US GPM) Hydraulic
	(2)	Suction Line - Hydraulic Extension
	(3)	Delivery Line - Hydraulic Extension
	(4)	Pressure Monitoring Equipment - Hydraulic Reservoir Pressure Reading from Outside Aircraft (Union, Hose, Pressure Gage Capable of 0 to 6 Bars (0 to 87 psi).
R	(5)	Nose Gear Shock Absorber Retraction Jack
R	(6)	Main Gear Shock Absorber Retraction Jack
R	(7)	Shock Absorber Charging Equipment
R	(8)	Safety Barriers
R	(9)	Access Platform
R	10)	Stop Watch
R	11)	Interphone
R	12)	Clinometer
R	13)98A09001001000	Bar - Steering, Nose Wheel
	Referenced Procedures	
	- 07-11-00, P. Block 1	Jacking for Aircraft Maintenance Operations
	- 24-41-00, P. Block 301	AC External Power Control
	- 29-10-00, P. Block 301	Main Hydraulic Power - Pressurization/ Depressurization

C. Procedure
(1)Job set-up
(a)Jack up the aircraft until wheels are clear of ground (Ref. 07-11-00, P. Block 1).
(b)Position safety barriers prohibiting access to door travel ranges.
(c)On panel 4VU
- make certain that landing gear Normal control lever is in DOWN position.
(d)Between First Officer's and Third Occupant's seats
- make certain that Free Fall extension control handle is in Normal position.
(e)Connect hydraulic ground power cart to Green hydraulic system (Ref. 29-10-00, P. Block 301).
(f)Energize the aircraft electrical network (Ref. 24-41-00, P. Block 301). Make certain that electronics racks ventilation is correct.
(g)Make certain that circuit breakers GB and GA associated with extension and retraction circuits and circuit breakers LP associated with annunciator light test circuits are closed.
(h)On panels 76VU and 400VU, check that the 3 green arrows are on.

D. Tests
(1)Annunciator light test (Ref. Operational Test).
(2)Door ground opening test (Ref. Functional Test).
(3)Door ground closing test (Ref. Functional Test).
(4)Gear retraction inhibition test with shock absorbers compressed.
NOTE : This test is performed with the aircraft on jacks.
WARNING : CHECK THAT GREEN HYDRAULIC SYSTEM IS DEPRESSURIZED AND PROHIBIT PRESSURIZATION BY DISPLAYING A WARNING NOTICE. MAKE CERTAIN THAT LANDING GEAR SAFETIES ARE IN POSITION.
WARNING : UNDER NO CIRCUNSTANCES WHATSOEVER SHOULD LANDING GEAR RETRACTION/EXTENSION TESTS BE CONDUCTED WHILST ENGINES ARE REMOVED FROM THE AIRCRAFT (ESPECIALLY ONE ENGINE REMOVED, LANDING GEAR FREE FALL EXTENSION TEST) DUE TO THE DANGER OF TIPPING OFF JACKS.
WARNING : IF ACCESS THROUGH FWD AND AFT CARGO DOORS IS REQUIRED DURING LANDING GEAR RETRACTION/EXTENTION TESTS, CARGO DOORS SHALL BE OPENED ONLY AS FAR AS VERTICAL HANGING POSITION TO AVOID STRESSING (FATIQUE) ON ACTUATOR MOUNTS.
(a)Inhibition : nose gear shock absorber compressed.
1 On panel 400VU
- make certain that LDG GEAR/POSITION DET/SYS1/SYS2 switch 10GA is in SYS1 position:
2 Depressurize nose gear shock absorber.
3 Compress the shock absorber with a suitable jack until it is no longer possible to place landing gear control lever in UP position.
R Check that anti-retraction system operates for a shock absorber
R compression stroke lower than 39 mm (1.535 in.) measured from the
R fully extended shock absorber position.
Allow shock absorber to gradually extend until landing gear control lever can be moved again. Check that anti-retraction system is
R released for a shock absorber compression stroke higher than 12 mm
R (0.473 in.) measured from the fully extended shock absorber position.
4 Place LDG GEAR/POSITION DET/SYS1/SYS2 switch 10GA in SYS2 position.
- carry out same tests as those conducted with switch 10GA in SYS1 position.
R - check that anti-retraction system operates for a shock absorber com-
R pression stroke lower than 35 mm (1.378 in.) measured from the fully
R extended shock absorber position.
R - check that anti-retraction system is released for a shock absorber
R compression stroke higher than 11 mm (0.437 in.) measured from the
R fully extended shock absorber position.
5 Place LDG GEAR/POSITION DET/SYS1/SYS2 switch 10GA in SYS1 position.
6 Release jack so that shock absorber extends.
7 Charge shock absorber.
(b)Inhibition : left and right main gear shock absorbers compressed.
1 On panel 400VU
- make certain that LDG GEAR/POSITION DET/SYS1/SYS2 switch 10GA is in SYS1 position.
2 Depressurize main gear shock absorber (R or L).
3 Compress the shock absorber with a suitable jack until it is no longer possible to place landing gear control lever in UP position.

R Check that anti-retraction system operates for a shock absorber
R compression stroke lower than 20 mm (0.787 in.) measured from the
R fully extended shock absorber position.
Allow shock absorber to gradually extend until landing gear control lever can be moved again. Check that anti-retraction system is
R released for a shock absorber compression stroke higher than 10 mm
R (0.394 in.) measured from the fully extended shock absorber position.

4 Place LDG GEAR/POSITION DET/SYS1/SYS2 switch 10GA in SYS2 position.
- Carry out same tests as those conducted with switch 10GA in SYS 1 position.
  - check that anti-retraction system operates and is released with shock absorber compressed to the same values as for SYS1 position.

5 Place LDG GEAR/POSITION DET/SYS1/SYS2 switch 10GA in SYS1 position.

6 Release jack so that shock absorber extends.

7 Charge shock absorber.

8 Test must be performed on the symmetrical main gear (L or R).

(5)Gear retraction inhibition test (Nose wheel steering to left or right).

NOTE : This test is performed with the aircraft on jacks.

WARNING : CHECK THAT GREEN HYDRAULIC SYSTEM IS DEPRESSURIZED AND PROHIBIT PRESSURIZATION BY DISPLAYING A WARNING NOTICE. MAKE CERTAIN THAT LANDING GEAR SAFETIES ARE IN POSITION.

ACTION	RESULT
(1)With nose wheels on aircraft centerline, depressurize nose gear shock absorber.	
(2)Compress nose gear shock absorber 2 mm (0.079 in.) using jack.	
(3)On panel 400VU, - place LDG/GEAR/POSITION DET/ SYS1/SYS2 switch 10GA in SYS1 position.	On panel 4VU, - check that landing gear control lever 2GA can be placed in UP position.
(4)On panel 4VU, - place landing gear control lever 2GA in DOWN position.	
(5)On panel 400VU, - place LDG/GEAR/POSITION DET/ SYS1/SYS2 switch 10GA in SYS2 position.	On panel 4VU, - check that landing gear control lever 2GA can be placed in UP position.
(6)On panel 4VU, - place landing gear control lever 2GA in DOWN position.	
(7)On panel 400VU, - place LDG/GEAR/POSITION DET/ SYS1/SYS2 switch 10GA in SYS1 position.	

NOTE : The landing gear control lever UP selection interlock (anti-retraction inhibition) is associated with the nose wheel.
This test serves to check that the interlock is activated when the nose wheels are turned away from the aircraft centerline and deactivated when the nose wheels are returned to the centered position within the following limits :
- 2°40' and 1°20' for system 1
- 2°20' and 1°10' for system 2.

(8)Install nose wheel steering bar
R 98A09001001000.

(9)Slowly turn nose wheel to left — Check that interlock is activated

ACTION	RESULT
until it is not possible to place landing gear control lever 2GA in UP position.	with steering angle less than 2°40'.
10)Slowly return nose wheels to centered position until it is possible to place landing gear control lever 2GA in UP position.	Check that interlock is deactivated with steering angle greater than 1°20'.
11)On panel 4VU, - place landing gear control lever 2GA in DOWN position.	
12)On panel 400VU, - place LDG/GEAR/POSITION DET/ SYS1/SYS2 in SYS2 position.	
13)Slowly turn nose wheel to left until it is not possible to place landing gear control lever 2GA in UP position.	Check that interlock is activated with steering angle less than 2°20'.
14)Slowly return nose wheels to centered position until it is possible to place landing gear control lever 2GA in UP position.	Check that interlock deactivated with steering angle greater than 1°10'.
15)On panel 40VU, - place landing gear control lever 2GA in DOWN position.	
16)Repeat steps (3) thru (15) with nose wheels steered to the right.	Same results.
17)Remove jack so that shock absorber extends.	
R 18)Remove nose wheel steering bar 98A09001001000.	
19)Charge shock absorber.	

(6)Gear retraction inhibition test (Main gear bogie beam not aligned)
(Ref. Fig. 507)

NOTE : This test is performed with the aircraft on jacks.

WARNING : CHECK THAT GREEN HYDRAULIC SYSTEM IS DEPRESSURIZED AND PROHIBIT PRESSURIZATION BY DISPLAYING A WARNING NOTICE. MAKE CERTAIN THAT LANDING GEAR SAFETIES ARE IN POSITION.

WARNING : UNDER NO CIRCUMSTANCES WHATSOEVER SHOULD LANDING GEAR RETRACTION/EXTENSION TESTS BE CONDUCTED WHILST ENGINES ARE REMOVED FROM THE AIRCRAFT (ESPECIALLY ONE ENGINE REMOVED, LANDING GEAR FREE FALL EXTENSION TEST) DUE TO THE DANGER OF TIPPING OFF JACKS.

WARNING : IF ACCESS THROUGH FWD AND AFT CARGO DOORS IS REQUIRED DURING LANDING GEAR RETRACTION/EXTENSION TESTS, CARGO DOORS SHALL BE OPENED ONLY AS FAR AS VERTICAL HANGING POSITION TO AVOID STRESSING (FATIGUE) ON ACTUATOR MOUNTS.

(a)On panel 400VU
- make certain that LDG GEAR/POSITION DET/SYS1/SYS2 switch 10GA is in SYS1 position.

(b)Depressurize the pitch damper connected to right main gear bogie beam.

(c)Slowly tilt the main gear bogie beam (Aft wheels tilted up or down) until landing gear Normal control lever can no longer be placed in UP position.
Check that up-selection interlock (anti-retraction system) is activated with bogie beam tilted by less than 1°57' (clinometer on bogie beam).

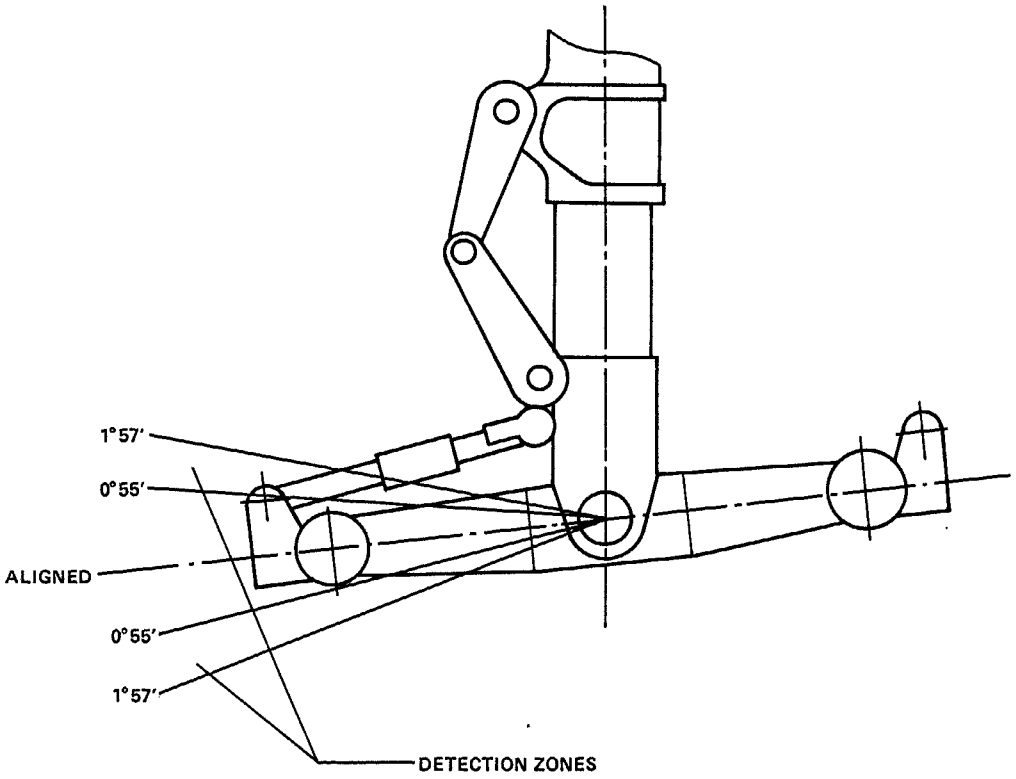
(d)Slowly return the main gear bogie (truck) beam to level position until it is possible to place landing gear Normal control Lever in UP position. Check that UP selection interlock (anti-retraction system) is deactivated with bogie (Truck) beam tilted by more than 0°55'.

(e)Place LDG GEAR/POSITION DET/SYS1/SYS2 switch 10GA in SYS2 position. Carry out same tests as those conducted with switch 10GA in SYS1 position. Check that anti-retraction system operates and is released with bogie beam tilted to the same values as for SYS1 position. Remove clinometer.

(f)Place LDG GEAR/POSITION DET/SYS1/SYS2 switch 10GA in SYS1 position.

(g)Charge right main gear bogie beam pitch damper.

(h)Depressurize the pitch damper connected to left main gear bogie beam and perform same test as those conducted above for the right main gear bogie beam.



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Bogie Beam - Proximity Detection Zones
Figure 507

(7)Gear Normal retraction test

NOTE : This test is performed with the aircraft on jacks.

WARNING : MAKE CERTAIN THAT GEAR AND DOOR TRAVEL RANGES ARE CLEAR. CHECK THAT GEAR WELLS ARE CLEAN AND CLEAR OF TOOLS AND MISCELLANEOUS ITEMS OF EQUIPMENT.

WARNING 1 : UNDER NO CIRCUMSTANCES WHATSOEVER SHOULD LANDING GEAR RETRACTION/EXTENSION TESTS BE CONDUCTED WHILST ENGINES ARE REMOVED FROM THE AIRCRAFT (ESPECIALLY ONE ENGINE REMOVED, LANDING GEAR FREE FALL EXTENSION TEST) DUE TO THE DANGER OF TIPPING OFF JACKS.

WARNING 2 : IF ACCESS THROUGH FWD AND AFT CARGO DOORS IS REQUIRED DURING LANDING GEAR RETRACTION/EXTENSION TESTS, CARGO DOORS SHALL BE OPENED ONLY AS FAR AS VERTICAL HANGING POSITION TO AVOID STRESSING (FATIGUE) ON ACTUATOR MOUNTS.

(a)Remove safety pins from main and nose gear struts.

(b)Connect a second hydraulic ground power cart to Green hydraulic system ground connectors using manifolds and equipment hoses to obtain a hydraulic fluid flow of 200 l/mn.

(c)On panel 427VU
- make certain that ELEC PUMPS pushbutton switch 14GE is in OFF position.

(d)Pressurize Green hydraulic system using the two ground power carts (Ref. 29-10-00,P. Block 301).

(e)Test

ACTION	RESULT
1. On panel 4VU, - place landing gear control lever in UP position.	On panels 76VU and 400VU, the three red UNLK legends come on. The following sequence occurs : - doors unlock and open - gear downlocks release and gears retract - gears uplock - doors close and uplock. Note operating times (repeat operations if required) - opening of nose gear doors : 1 ± 0.1 second - opening of main gear doors : 2 ± 0.2 seconds - nose gear retraction : 9.5 ± 0.8 seconds - main gear retraction : 9.5 ± 0.5 seconds - closure of nose gear doors : 1 ± 0.1 second - closure of main gear doors : 1.5 ± 0.2 seconds Note total retraction sequence time :

ACTION	RESULT
	- Nose gear : 11.5 ± 1 seconds - Main gear : 13 ± 0.5 seconds. On panels 76VU and 400VU, check that annunciator legends come on or go off in the following order : - the three **DOOR** legends come on amber (doors unlocked and open) - the three green arrows go off (downlock release and retraction of gears) - the three amber **DOOR** legends go off (doors closed and uplocked). **NOTE** : At the end of the sequence all annunciators are off.
2. On panel 4VU - place landing gear control lever in Neutral position.	No change.

(8)Landing gear Normal extension test

NOTE : This test must be performed with the aircraft on jacks.

WARNING : MAKE CERTAIN THAT THE DOOR AND GEAR TRAVEL RANGES ARE CLEAR.

WARNING 1 : UNDER NO CIRCUMSTANCES WHATSOEVER SHOULD LANDING GEAR RETRACTION/EXTENSION TESTS BE CONDUCTED WHILST ENGINES ARE REMOVED FROM THE AIRCRAFT (ESPECIALLY ONE ENGINE REMOVED, LANDING GEAR FREE FALL EXTENSION TEST) DUE TO THE DANGER OF THE TIPPING OFF JACKS.

WARNING 2 : IF ACCESS THROUGH FWD AND AFT CARGO DOORS IS REQUIRED DURING LANDING GEAR RETRACTION/EXTENSION TESTS, CARGO DOORS SHALL BE OPENED ONLY AS FAR AS VERTICAL HANGING POSITION TO AVOID STRESSING (FATIGUE) ON ACTUATOR MOUNTS.

(a)Make certain that Green hydraulic system is pressurized.

(b)Test

R CAUTION : THE LANDING GEAR EXTENSION SEQUENCE CAN CAUSE A HIGH
R FLUID LEVEL INDICATION (UP TO MAX. GAGEABLE) IN THE GREEN
R HYDRAULIC RESERVOIR. THIS LEVEL INCREASE WHICH IS TEMPORARY
R IS CONSIDERED AS NORMAL. NEVERTHELESS, AFTER EACH EXTENSION,
R THE HYDRAULIC RESERVOIR LEVEL SHOULD BE ALLOWED TO RETURN TO
R THE NORMAL FLUID LEVEL INDICATION (LESS THAN 5 MINUTES)
R BEFORE PERFORMING A GEAR RETRACTION AND VICE VERSA.
R MOREOVER, IN THE PARTICULAR CASE OF IMMEDIATE RETRACTION
R FOLLOWING EXTENSION (CYCLES DURING MAINTENANCE GROUND CHECKS
R OR TRAINING FLIGHT FOR EXAMPLE), GREEN HYDRAULIC RESERVOIR
R "LO AIR PRESS" WARNING COULD TRIGGER DUE TO FAST TRANSIENT
R HYDRAULIC RESERVOIR LEVEL CAUSED BY CAVITATION IN MLG
R ACTUATOR EXTENSION CHAMBER.

ACTION	RESULT
1. On panel 4VU, - place landing gear control lever in **DOWN** position.	On panels 76VU and 400VU, the three red UNLK legends come on. The following sequence occurs (all gears) : - doors unlock and open - uplock release and extension of gears - gears downlock - doors close and uplock. Note operating times - Nose gear : door opening : 1 ± 0.1 second gear extension : 14 ± 0.8 seconds door closure : 1 ± 0.1 second Total time : 16 ± 1 seconds - Main gear : door opening : 2 ± 0.2 seconds gear extension : 10.5 ± 0.5 seconds door closure : 1.5 ± 0.2 seconds Total time : 14 ± 0.5 seconds

ACTION	RESULT
	On panels 76VU and 400VU, check that legends come on or go off in the following order : - the three **DOOR** legends come on amber (doors unlocked and open) - the three green arrows come on and three red **UNLK** legends go off (gears downlocked) - the three amber **DOOR** legends go off (doors closed and uplocked).

NOTE : After gear extension, only the three green arrows are on (gears downlocked).

(9)Close-Up
- (a)Install safety pins on main and nose gear struts.
- (b)On panel 4VU
  - make certain that landing gear Normal control lever is in **DOWN** position.
- (c)Depressurize Green hydraulic system and shut down and disconnect hydraulic ground power carts.
- (d)De-energize the aircraft electrical network and disconnect electrical ground power unit (Ref. 24-41-00, P. Block 301).

MAIN GEAR WHEEL RAMP GUIDE - APPROVED REPAIRS

1. Reason for the Job

Repair following detection of cracks or breakage of main gear wheel ramp guide by adding a doubler secured with blind rivets.

NOTE : If the crack length is upper 120 mm (4.72 in.) the MLG wheel ramp is not repairable.

NOTE : For one crack, the reparation is permanent. For two cracks, the repair is temporary and limited to 3500 FC. After this limit, replace the main gear wheel ramp guide.

2. Equipment and Materials

ITEM	DESIGNATION
A.	Access Platform 2.60 m (8 ft. 7 in.)
B.	Warning Notices
C.	Safety Barriers
D. Material No. 09-013	Sealant (Ref. 20-31-00)
E. Material No. 11-003	Cleaning Agent (Ref. 20-31-00)
F. Material No. 16-001	Polyurethane Primer (Ref. 20-31-00)
G. Material No. 16-018	Polyurethane Finish Paint (Ref. 20-31-00)
H. Material No. 16-020	Wash Primer (Ref. 20-31-00)
Referenced Procedures	
- 32-12-11, P. Block 301	Main Gear Main Door (Ground Door(s) Opening)

3. Procedure

A. Job Set-Up

(1)On panel 4VU

- Make certain that landing gear normal control lever is in DOWN position and prohibit its operation by displaying a warning notice.

(2)Between First Officer's and Third Occupant's seats

- Make certain that landing gear free fall extension control handle is in normal position.

(3)Position access platform

(4)Position safety barriers prohibiting access to gear door travel ranges.

WARNING : MAKE CERTAIN THAT DOOR TRAVEL RANGES ARE CLEAR.

(5)Open main gear door (Ref. 32-12-11, P. Block 301).

B. Temporary Repair Principle

(Ref. Fig. 801)

(Ref. Fig. 802)

(1)Cut-out the teflon band if necessary.

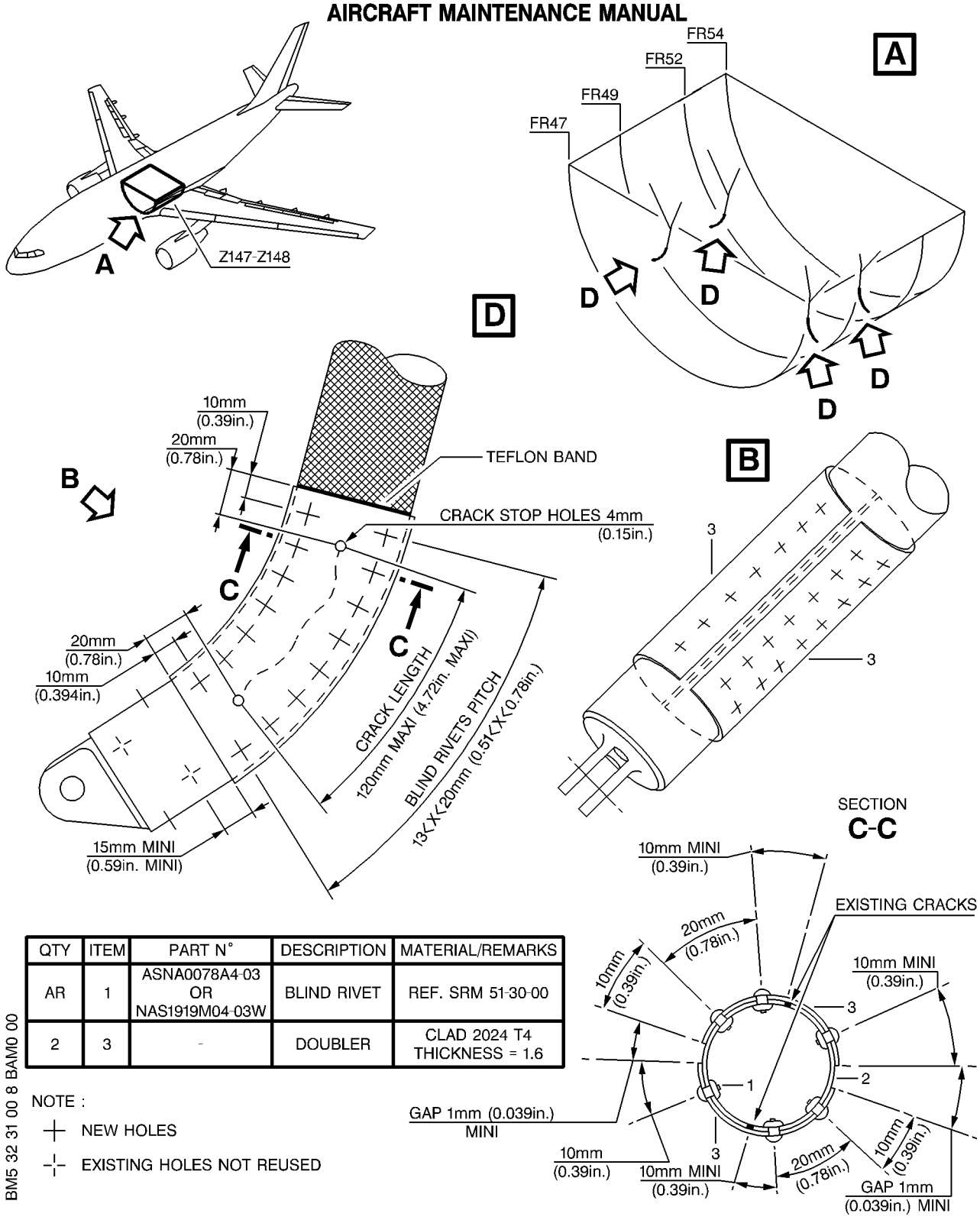
(2)Clean and degrease the repair area with cleaning agent (Material No. 11-003).

R (3)Drill 4 mm (0.15 in.) diameter hole on each end of the cracks.

(4)Deburr the holes.

R (5)Position and temporarily attach the doublers (3) on the MLG wheel ramp assy (2).

R (6)Transfert the pilot holes from the doublers (3) to the MLG wheel ramp



QTY	ITEM	PART N°	DESCRIPTION	MATERIAL/REMARKS
AR	1	ASNA0078A4-03 OR NAS1919M04-03W	BLIND RIVET	REF. SRM 51-30-00
2	3	-	DOUBLER	CLAD 2024 T4 THICKNESS = 1.6

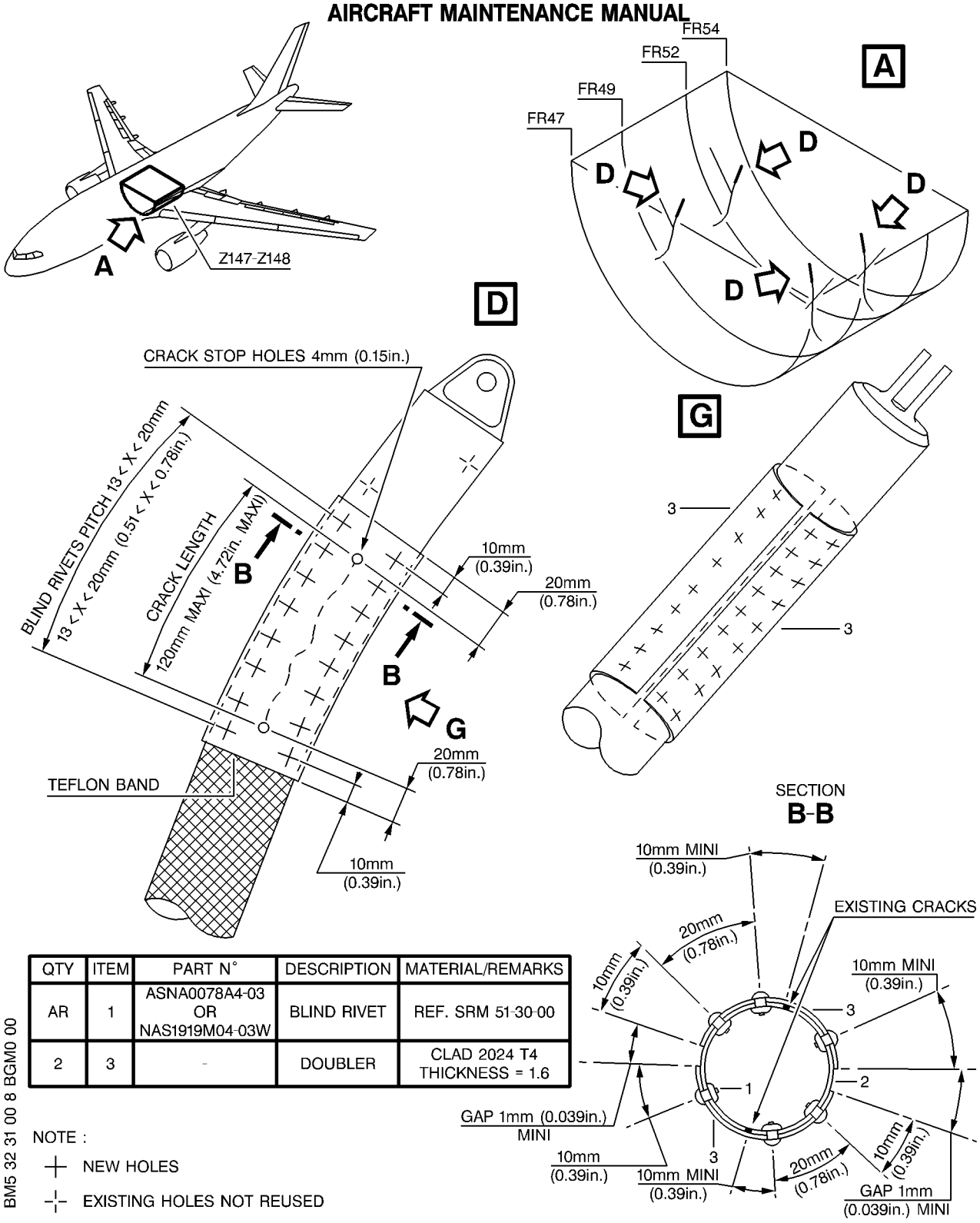
NOTE :

+ NEW HOLES

-|- EXISTING HOLES NOT REUSED

BM5 32 31 00 8 BAM0 00

MLG Wheel Lower Ramp Assy - Temporary Approved Repair
Figure 801



QTY	ITEM	PART N°	DESCRIPTION	MATERIAL/REMARKS
AR	1	ASNA0078A4-03 OR NAS1919M04-03W	BLIND RIVET	REF. SRM 51-30-00
2	3	-	DOUBLER	CLAD 2024 T4 THICKNESS = 1.6

NOTE :

+ NEW HOLES

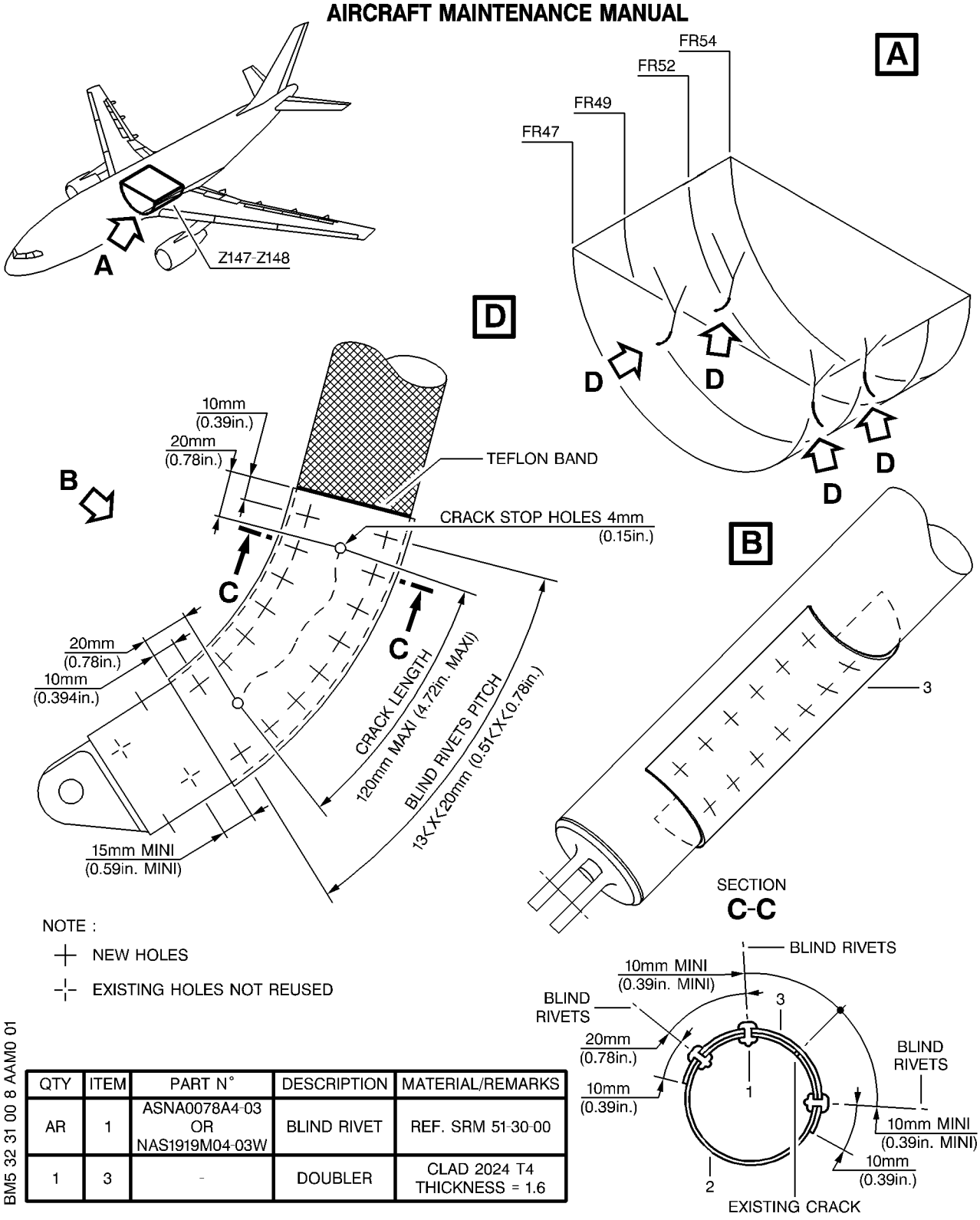
-|- EXISTING HOLES NOT REUSED

BM5 32 31 00 8 BGM0 00

MLG Wheel Upper Ramp Assy - Temporary Approved Repair
Figure 802

R assy (2) to drill the holes (4 mm (0.15 in) diameter).
R (7)Deburr the holes.
WARNING : CLEANING AGENT (MATERIAL NO. 11-003) IS DANGEROUS. OBEY THE MANUFACTURER'S INSTRUCTIONS WHEN YOU USE CLEANING AGENT.
(8)Clean and degrease all parts with cleaning agent (Material No. 11-003).
WARNING : POLYURETHANE PRIMER (MATERIAL NO. 16-001) IS DANGEROUS. OBEY THE MANUFACTURER'S INSTRUCTIONS WHEN YOU USE POLYURETHANE PRIMER.
WARNING : WASH PRIMER (MATERIAL NO. 16-020) IS DANGEROUS. OBEY THE MANUFACTURER'S INSTRUCTIONS WHEN YOU USE WASH PRIMER.
(9)Apply protective treatment.
(a)On new parts only
1 Chromic Acid Anodizing
2 Polyurethane primer (Material No. 16-001).
(b)On cuts out and on countersinks only:
1 Wash primer (Material No. 16-020)
2 Polyurethane primer (Material No. 16-001).
WARNING : SEALANT (MATERIAL NO. 09-013) IS DANGEROUS. OBEY THE MANUFACTURER'S INSTRUCTIONS WHEN YOU USE SEALANT.
(10)Install the doubler (3) on the MLG wheel ramp assy (2) with interposition of sealant (Material No. 09-013) on contact surfaces.
(11)Install the rivets (1) with sealant (Material No. 09-013).
WARNING : POLYURETHANE PRIMER (MATERIAL NO. 16-001) IS DANGEROUS. OBEY THE MANUFACTURER'S INSTRUCTIONS WHEN YOU USE POLYURETHANE PRIMER.
WARNING : WASH PRIMER (MATERIAL NO. 16-020) IS DANGEROUS. OBEY THE MANUFACTURER'S INSTRUCTIONS WHEN YOU USE WASH PRIMER.
WARNING : POLYURETHANE FINISH PAINT (MATERIAL NO. 16-018) IS DANGEROUS. OBEY THE MANUFACTURER'S INSTRUCTIONS WHEN YOU USE POLYURETHANE FINISH PAINT.
(12)Apply protective treatment on the external surface.
(a)Wash primer (Material No. 16-020).
(b)Polyurethane primer (Material No. 16-001).
(c)Polyurethane finish paint (Material No. 16-018).

C. Permanently Repair Principle
(Ref. Fig. 803)
(Ref. Fig. 804)
(1)Cut-out the teflon band if necessary.
(2)Clean and degrease the repair area with cleaning agent (Material No. 11-003).
(3)Drill 4 mm (0.15 in.) diameter hole on each end of the crack.
(4)Deburr the holes.
(5)Position and temporarily attach the doubler (3) on the MLG wheel ramp assy (2).
(6)Transfert the pilot holes from the doubler (3) to the MLG wheel ramp assy (2) to drill the holes (4 mm (0.15 in) diameter).
(7)Deburr the holes.
WARNING : CLEANING AGENT (MATERIAL NO. 11-003) IS DANGEROUS. OBEY THE MANUFACTURER'S INSTRUCTIONS WHEN YOU USE CLEANING AGENT.
(8)Clean and degrease all parts with cleaning agent (Material No. 11-003).



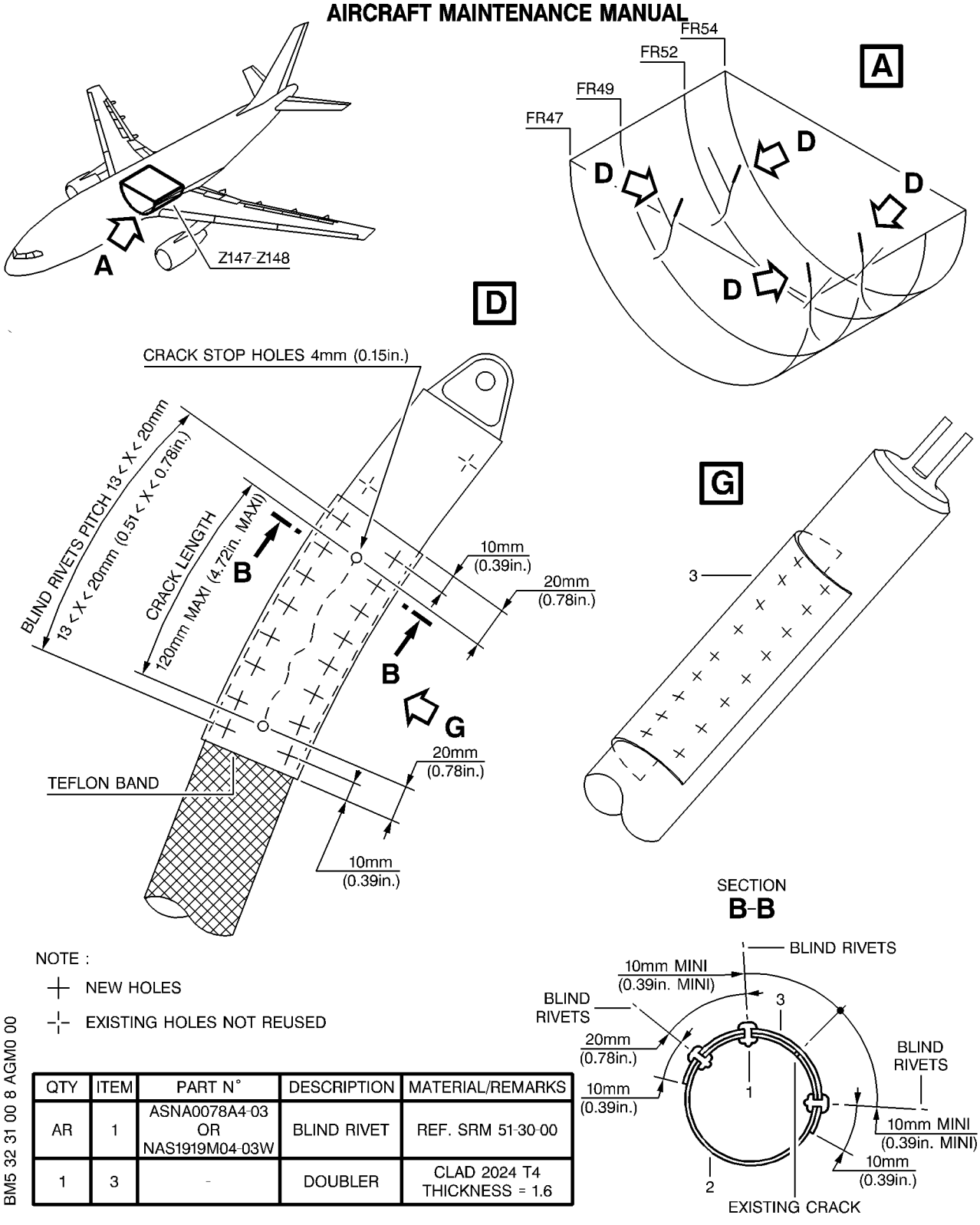
NOTE :

- NEW HOLES
- EXISTING HOLES NOT REUSED

BM5 32 31 00 8 AAM0 01

QTY	ITEM	PART N°	DESCRIPTION	MATERIAL/REMARKS
AR	1	ASNA0078A4-03 OR NAS1919M04-03W	BLIND RIVET	REF. SRM 51-30-00
1	3	-	DOUBLER	CLAD 2024 T4 THICKNESS = 1.6

MLG Wheel Lower Ramp Assy - Permanently Approved Repair
Figure 803



NOTE :

- NEW HOLES
- EXISTING HOLES NOT REUSED

QTY	ITEM	PART N°	DESCRIPTION	MATERIAL/REMARKS
AR	1	ASNA0078A4-03 OR NAS1919M04-03W	BLIND RIVET	REF. SRM 51-30-00
1	3	-	DOUBLER	CLAD 2024 T4 THICKNESS = 1.6

BM5 32 31 00 8 AGM0 00

MLG Wheel Upper Ramp Assy - Permanently Approved Repair
Figure 804

WARNING : POLYURETHANE PRIMER (MATERIAL NO. 16-001) IS DANGEROUS. OBEY THE MANUFACTURER'S INSTRUCTIONS WHEN YOU USE POLYURETHANE PRIMER.

WARNING : WASH PRIMER (MATERIAL NO. 16-020) IS DANGEROUS. OBEY THE MANUFACTURER'S INSTRUCTIONS WHEN YOU USE WASH PRIMER.

(9)Apply protective treatment.
  (a)On new parts only
    1 Chromic Acid Anodizing
    2 Polyurethane primer (Material No. 16-001).
  (b)On cuts out and on countersinks only:
    1 Wash primer (Material No. 16-020)
    2 Polyurethane primer (Material No. 16-001).

WARNING : SEALANT (MATERIAL NO. 09-013) IS DANGEROUS. OBEY THE MANUFACTURER'S INSTRUCTIONS WHEN YOU USE SEALANT.

(10)Install the doubler (3) on the MLG wheel ramp assy (2) with interposition of sealant (Material No. 09-013) on contact surfaces.
(11)Install the rivets (1) with sealant (Material No. 09-013).

WARNING : POLYURETHANE PRIMER (MATERIAL NO. 16-001) IS DANGEROUS. OBEY THE MANUFACTURER'S INSTRUCTIONS WHEN YOU USE POLYURETHANE PRIMER.

WARNING : WASH PRIMER (MATERIAL NO. 16-020) IS DANGEROUS. OBEY THE MANUFACTURER'S INSTRUCTIONS WHEN YOU USE WASH PRIMER.

WARNING : POLYURETHANE FINISH PAINT (MATERIAL NO. 16-018) IS DANGEROUS. OBEY THE MANUFACTURER'S INSTRUCTIONS WHEN YOU USE POLYURETHANE FINISH PAINT.

(12)Apply protective treatment on the external surface.
  (a)Wash primer (Material No. 16-020).
  (b)Polyurethane primer (Material No. 16-001).
  (c)Polyurethane finish paint (Material No. 16-018).

C. Close-Up
  (1)Make certain that working area is clean and clear of tools and miscellaneous items of equipment.
  (2)Close main gear doors (Ref. 32-12-11, P. Block 301).
  (3)Remove warning notices.
  (4)Remove safety barriers and access platform.

LANDING GEAR NORMAL CONTROL MICROSWITCH UNIT (2GA) - REMOVAL/INSTALLATION

WARNING : CHECK THAT THE LANDING GEAR GROUND SAFETIES INCLUDING WHEEL CHOCKS ARE IN POSITION.

1. Equipment and Materials

ITEM	DESIGNATION
A.	Circuit Breaker Safety Clips
B.	Electrical Ground Power Unit - 3-Phase 115/200 V, 400 Hz, 90 KVA
C. 860135953100001	Test Set - Landing Gear Safety Relay Control Simulator
D.	Safety Barriers
Referenced Procedures	
- 24-41-00, P. Block 301	External Power
- 29-10-00, P. Block 301	Main Hydraulic Power - Pressurization/ Depressurization
- 29-14-00, P. Block 301	Hydraulic Tank - Pressurization/ Depressurization
- 29-21-00, P. Block 301	Green Auxiliary Power - Pressurization
- 32-00-00, P. Block 501	General - Adjustment/Test
- 32-22-11, P. Block 301	Nose Gear Main Doors
- 32-31-12, P. Block 601	Landing Gear Electrovalve 3GA
- 32-61-00, P. Block 501	Indicating and Warning - Adjustment/Test

2. Procedure

A. Job Set-Up

(1)Open, safety and tag the following circuit breakers :

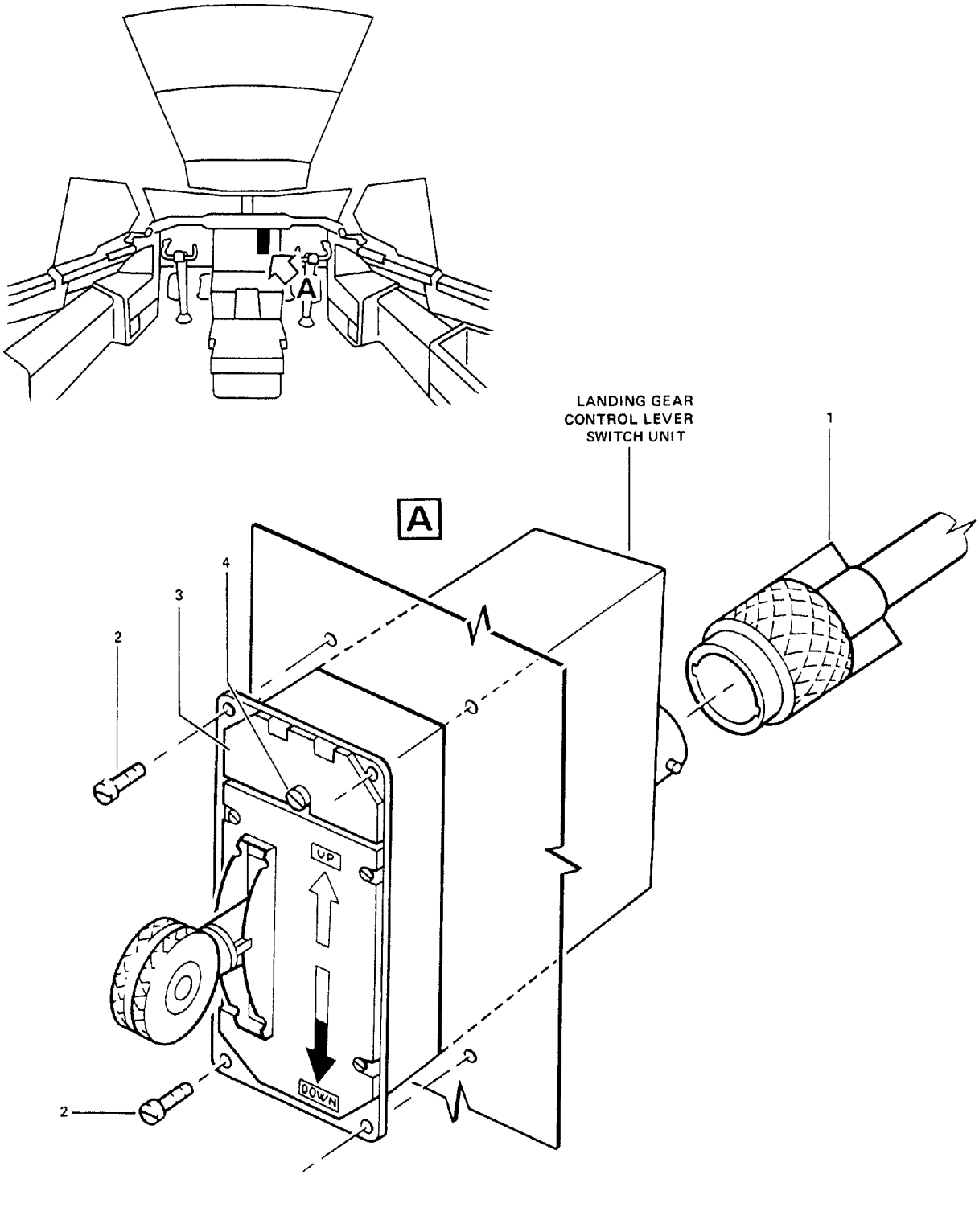
PANEL	SERVICE	IDENT.	LOCATION
22VU	LDG GEAR EXTEND CTL	1GA	201/J28
133VU	L/G PROX DET/& RELAYS SYS1/RELAYS &/ RETRACT/CTL	2GB	332/U51
133VU	L/G PROX DET/& RELAYS SYS1/GEAR DN &/ CTR PNL/POS IND	3GB	332/U53
133VU	L/G PROX DET/& RELAYS SYS2/GEAR DOWN &/ OVHD PNL/POS IND	83GB	331/V51
133VU	BRAKES SYSTEM/CTL UNIT/ CTL &/WARN	5GG	333/T56
21VU	AIDS/PMUX	12TU	105/E05
21VU	AIDS/DFDAU	55TU	105/E03
21VU	ECAM/SDAC PWR SUPPLY	6WV	109/A05

B. Removal

(Ref. Fig. 401)

(1)Remove screws (2) securing microswitch unit 2GA.

(2)Withdraw microswitch unit 2GA from panel 4VU to gain access to electrical connector (1).



Landing Gear Normal Control Microswitch Unit 2GA
Figure 401

(3)Disconnect electrical connector (1) and remove microswitch unit 2GA.

C. Installation
(1)Connect electrical connector (1) to microswitch unit 2GA.
(2)Position microswitch unit 2GA in panel 4VU and secure with screws (2).

D. Test
(1)Preparation for test
WARNING : MAKE CERTAIN THAT LANDING GEAR NORMAL CONTROL LEVER ON MICRO-SWITCH UNIT 2GA IS IN DOWN POSITION PRIOR TO CLOSING THE FOLLOWING CIRCUIT BREAKERS.
(a)Connect main landing gear safety relay control simulator test set (Ref. 32-00-00, P. Block 501).
On safety relay control simulator test set :
- place SIMULATION FLIGHT/GROUND CONFIGURATIONS switches in ground position.
- place NORMAL/TEST switches in TEST position.
- place SIMULATION/LANDING GEAR DOWNLOCKED switches in DOWNLOCKED position.
- place FLIGHT/GROUND switch 3XG in GROUND position.

R (b)On panel 4VU
R - make certain that landing gear Normal control lever is in DOWN posi-
R tion.
R (c)Remove safety clips and tags and close circuit breakers 3GB, 1GA, 2GB,
R 83GB, 5GG, 12TU, 55TU, 6WV.
(d)Between First Officer's and Flight Engineer's seats
- make certain that landing gear Free Fall extension control handle is in Normal position.
(e)On center pedestal
- check that PARKING BRAKE control handle is in Normal (released) position.
(f)Make certain that safety pins are installed on nose and main gear struts.
WARNING : WHENEVER THE GROUND SAFETY PIN IS INSTALLED ON THE NOSE GEAR TELESCOPIC STRUT, IT IS NECESSARY TO OPEN THE NOSE GEAR DOORS (REF. 32-22-11, P. BLOCK 301) TO ALWAYS VISUALLY CHECK THAT :
- IT HAS COMPLETELY AND EASILY ROTATED THE FORK-TYPE LEVER OF THE GROUND LOCKING SYSTEM.
- ITS STOP FLANGE ABUTS AGAINTS THE HOUSING OF THE TELESCOPIC STRUT LOCKING SYSTEM (FULL INSERTION).
BEFORE PRESSURIZING THE LANDING GEAR RETRACTION SYSTEM, THE NOSE GEAR DOORS MUST BE CLOSED (REF. 32-22-11, P. BLOCK 301).
(g)Position safety barriers prohibiting access to gear door travel ranges.
(h)Connect electrical ground power unit and energize the aircraft electrical network (Ref. 24-41-00, P. Block 301).
(j)Make certain that Green hydraulic tank is pressurized (Ref. 29-14-00, P. Block 301).
(k)Pressurize Green hydraulic system using Green electric pumps (Ref. 29-21-00, P. Block 301).
(l)Check that ANTI SKID switch 6GG is in NORM position.
WARNING : MAKE CERTAIN THAT DOOR TRAVEL RANGES ARE CLEAR.

(2)Test of microswitch unit by testing its various functions.
(a)Check of landing gear control function by observing landing gear door movement with respect to control lever position.
1 On panel 4VU
- place landing gear Normal control lever in Neutral position.
- simultaneously observe one of the main gear doors.
- note that door lowers slightly until it comes to rest on uplock hook (lowering of door caused by depressurization of door actuating cylinders).

(b)Check of in flight wheel braking function with landing control lever in UP position.
1 On landing gear safety relay control simulator test set
- place switch 8GA/9GA and switch 11GA/12GA in TEST position (bogie beam in flight configuration).
- the 6 SIMULATION FLIGHT/GROUND CONFIGURATIONS switches in FLIGHT position.

2 On panel 4VU, on landing gear Normal control microswitch unit 2GA,
- place landing gear Normal control lever in UP position.

3 Check that all gear doors are open.
4 Check that the eight brakes are pressurized for 3 seconds.
5 On panel 4VU
- place landing gear Normal control lever in DOWN position.

R 6 On landing gear Normal control simulator test set
R - place switch 8GA/9GA and switch 11GA/12GA in NORMAL (GROUND) position
R - place the 6 SIMULATION FLIGHT/GROUND CONFIGURATIONS switches in GROUND position.

(c)Perform operation test of landing gear warning using LDG GEAR/WARN TEST pushbutton switch (Ref. 32-61-00, P. Block 501).
(d)Perform operational test of annunciator light (Ref. 32-61-00, P. Block 501).
(e)Check of anti-retraction latch

R
- On panel 400VU
. place LDG GEAR LEVER LOCK & WARN TEST SYS 1/SYS 2 switch in SYS 1 then SYS 2 position and check that, for each of these positions, the anti-retraction latch, preventing selection of landing gear Normal control lever to UP position, is operative.

(3)Perform a landing gear Electrovalve Inspection/Check (Ref. 32-31-12, P. Block 601).

E. Close-Up
WARNING : MAKE CERTAIN THAT THE DOOR TRAVEL RANGES ARE CLEAR.
(1)Disconnect landing gear safety relay control simulator test set (Ref. 32-00-00, P. Block 501).
(2)Close landing gear doors.
(3)On panel 4VU
- place landing gear Normal control lever in DOWN position.
(4)- On panel 76VU, check that green arrows on annunciators 171GB, 173GB and 175GB are on (gears downlocked).
- On panel 400VU, check that green arrows on annunciators 165GB, 166GB

and 169GB are on.

(5)Check that the eight brakes are released.

(6)Shut down hydraulic power supply (Ref. 29-10-00, P. Block 301).

(7)De-energize the aircraft electrical network and disconnect electrical ground power unit (Ref. 24-41-00, P. Block 301).

(8)Remove safety barriers.

(9)Remove all ground handling and maintenance equipment, standard and special tools, together with ground power and replenishing equipment, and miscellaneous items.

LANDING GEAR SELECTOR VALVE (3GA) - REMOVAL/INSTALLATION

WARNING : CHECK THAT THE LANDING GEAR GROUND SAFETIES INCLUDING WHEEL CHOCKS ARE IN POSITION.

BEFORE APPLYING OR RELIEVING HYDRAULIC SYSTEM PRESSURE, MAKE CERTAIN THAT THE TRAVEL RANGES OF THE CONTROL SURFACES ARE CLEAR.

BEFORE PRESSURIZING HYDRAULIC SYSTEMS, CHECK THAT ALL CONTROLS ARE SET TO CORRESPOND WITH THE ACTUAL POSITION OF THE SERVICES THEY OPERATE.

BEFORE PRESSURIZING HYDRAULIC SYSTEMS, MAKE CERTAIN THAT HYDRAULIC SYSTEM UNDER MAINTENANCE HAS BEEN ISOLATED.

BEFORE POWER IS SUPPLIED TO THE AIRCRAFT, MAKE CERTAIN THAT ELECTRICAL CIRCUIT UPON WHICH WORK IS IN PROGRESS ARE ISOLATED.

1. Equipment and Materials

ITEM	DESIGNATION
A. 97A29102035000	Connector - Pressurizing, Hydraulic Tank
B. 97A29102062000	Connector - Depressurizing, Hydraulic Tank
C.	Circuit Breaker Safety Clips
D.	Access Platform 2.60 m (8 ft. 7 in.)
E.	Safety Barriers
F.	Blanking Plugs/Caps
G.	Warning Notices
H.	Hydraulic Fluid Container
J. Material No. 11-002	Cleaning Agents (Ref. 20-31-00)
Referenced Procedures	
- 12-12-29, P. Block 1	Hydraulic Reservoir Replenishing
R - 20-23-15, P. Block 1	Installation of swivel plug-in unions
- 29-10-00, P. Block 301	Main Hydraulic Power - Pressurization/Depressurization
- 29-14-00, P. Block 301	Hydraulic Reservoir - Pressurization/Depressurization
- 32-00-00, P. Block 501	Landing Gear - General
- 32-12-11, P. Block 301	Main Gear Main Door - (Ground Door(s) Opening)
- 32-31-12, P. Block 601	Landing Gear Selector Valve

2. Procedure

A. Job Set-Up

(1)On panel 4VU

- make certain that landing gear control lever is in **DOWN** position and prohibit its operation by displaying a warning notice.

(2)Between First Officer's and Third Occupant's seats

- make certain that landing gear Free Fall extension control handle is in Normal position.

(3)Open, safety and tag the following circuit breakers :

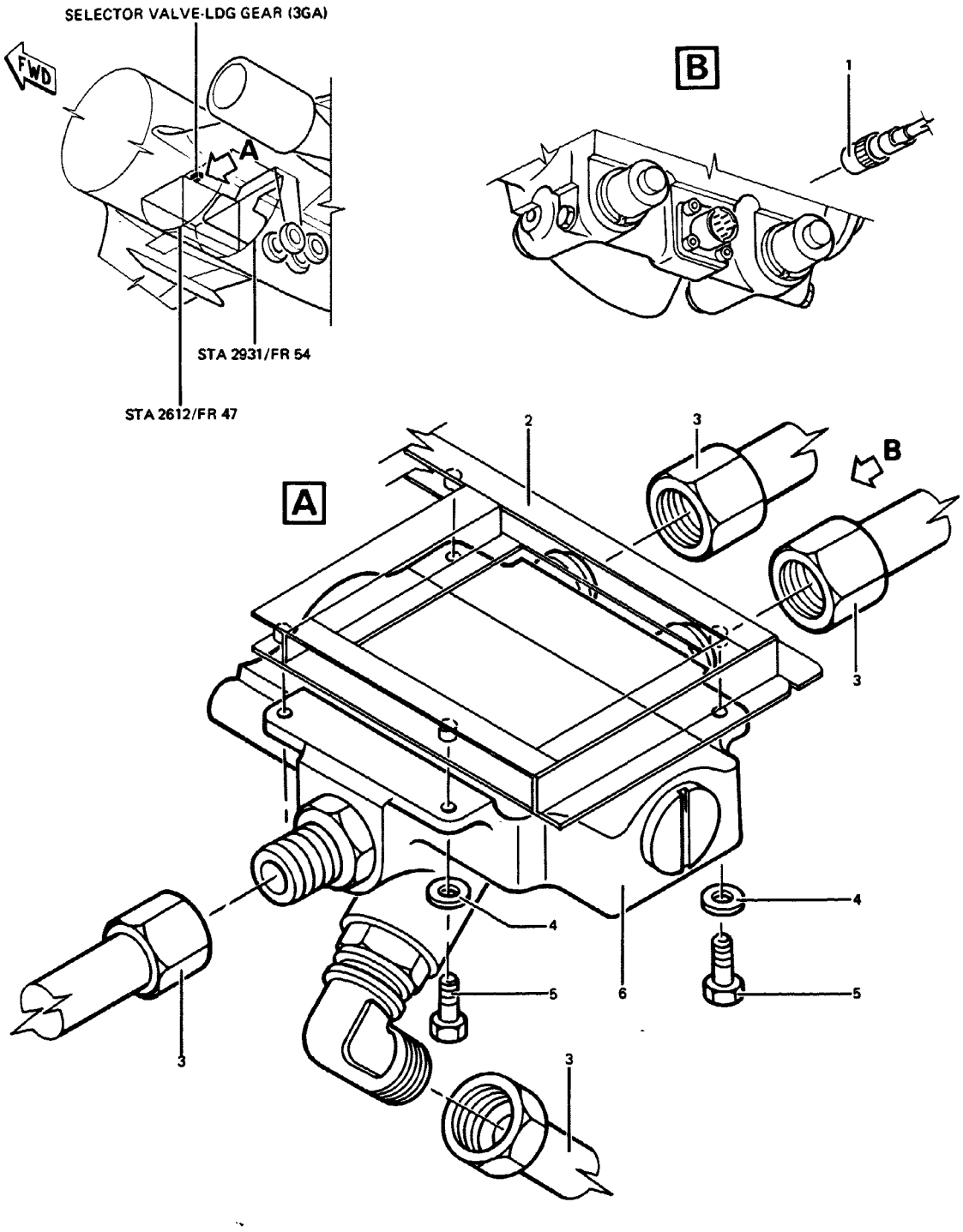
PANEL	SERVICE	IDENT.	LOCATION
22VU	LDG GEAR/EXTEND/CTL	1GA	201/J28
133VU	HYDRAULIC/L/G PROX DET/& RELAYS SYS1/ RELAYS &/RETRACT/CTL	2GB	332/U51

(4)Position access platform.
(5)Position safety barriers prohibiting access to main gear door travel ranges.
WARNING : MAKE CERTAIN THAT THE DOOR TRAVEL RANGES ARE CLEAR.
(6)Open right main gear door (Ref. 32-12-11, P. Block 301).
WARNING : WHEN DOORS ARE OPEN MAKE CERTAIN THAT SAFETY COLLARS ARE POSITIONED ON DOOR ACTUATING CYLINDERS.
(7)Depressurize Green hydraulic reservoir (Ref. 29-14-00, P. Block 301) and prohibit its pressurization by displaying a warning notice
- on panel 429VU to prohibit APU starting
- on reservoir pressurization connector.
(8)Depressurize Green hydraulic system (Ref. 29-10-00, P. Block 301). and prohibit its pressurization by displaying a warning notice :
- on Green system ground connectors
- on panel 427VU to prohibit operation of Green electric pumps (ELEC PUMPS pushbutton switch).
(9)Position hydraulic fluid container.

B. Removal
(Ref. Fig. 401)
(1)Disconnect electrical connector (1) and cap connector (1) and connector on selector valve (6).
(2)Mark and disconnect hydraulic lines (3) and blank ports and open line ends.
(3)Remove selector valve (6).
(a)Cut and remove lockwire, remove screws (5) and retain washers (4).
(b)Remove selector valve (6).

C. Preparation of Replacement Component
(1)Depreserve replacement selector valve.
(2)Clean replacement component with Material No.11-002.
(3)If replacement component is supplied without hydraulic unions recover unions from removed component, clean and check them for correct condition, and install on replacement component with new seals.
R NOTE : Make certain that the seals are correctly installed
R (Ref. 20-23-15, P. Block 1).

D. Installation
(1)Install selector valve assembly (6).
(a)Position selector valve (6) on its support (2).
(b)Secure selector valve (6) with screws (5) and washers (4).
(c)Tighten and wirelock screws (5).
(2)Remove caps and connect hydraulic lines (3) to selector valve in accordance with markings made at removal.



Landing Gear - Selector Valve
Figure 401

(a)Connect hydraulic lines (3).
(b)Fully tighten union locknuts.
(3)Remove blanking cap and connect electrical connector (1).

E. Tests
(1)Perform a landing gear Electrovalve Inspection/Check (Ref. 32-31-12, P. Block 601).
Carefully check replaced selector valve for external leakage during initial pressurization and upon completion of tests.

F. Close-Up
(1)Remove hydraulic fluid container.
(2)Make certain that working area is clean and clear of tools and miscellaneous items of equipment.
(3)Pressurize hydraulic reservoirs (Ref. 29-14-00, P. Block 301).
(4)Close circuit breakers 1GA and 2GB.
WARNING : MAKE CERTAIN THAT DOOR TRAVEL RANGES ARE CLEAR.
(5)Close main gear right door (Ref. 32-12-11, P. Block 301).
(6)Replenish hydraulic reservoirs as necessary (Ref. 12-12-29, P. Block 1).
(7)Remove warning notices.
(8)Close access doors, remove access platform and safety barriers.
(9)Remove all ground handling and maintenance equipment, standard and special tools, together with ground power and replenishing equipment, all access equipment and miscellaneous items.

LANDING GEAR ELECTROVALVE (3GA) - INSPECTION/CHECK

WARNING : CHECK THAT THE LANDING GEAR GROUND SAFETIES INCLUDING WHEEL CHOCKS ARE IN POSITION.

BEFORE APPLYING OR RELIEVING HYDRAULIC SYSTEM PRESSURE, MAKE CERTAIN THAT THE TRAVEL RANGES OF THE CONTROL SURFACES ARE CLEAR.

BEFORE PRESSURIZING HYDRAULIC SYSTEMS, CHECK THAT ALL CONTROLS ARE SET TO CORRESPOND WITH THE ACTUAL POSITION OF THE SERVICES THEY OPERATE.

1. Reason for the Job

A. Check that landing gear electrovalve 3GA operates correctly. The check consists in observing the movement of the landing gear doors with respect to the position of the landing gear Normal control lever.

2. Equipment and Materials

ITEM	DESIGNATION
A.	Safety Barriers
B. 860135953100001	Test Set-Landing Gear Safety Relay Control Simulator
R Referenced Procedures	
R - 24-41-00, P. Block 301	AC External Power Control
R - 29-10-00, P. Block 301	Main Hydraulic Power-Pressurization/Depressurization
R - 29-14-00, P. Block 301	Hydraulic Tank-Pressurization/Depressurization
R - 29-21-00, P. Block 301	Green Auxiliary Power Pressurization/Depressurization
R - 32-00-00, P. Block 501	Landing Gear
R - 32-22-11, P. Block 301	Nose Gear Main Doors
R - 32-31-12, P. Block 401	Landing Gear ElectroValve 3GA

3. Procedure

A. Job Set-Up

Aircraft configuration
Aircraft on its wheels
Landing gear doors closed
Landing gear safety pins installed.

(1) Connect main landing gear safety relay control simulator test set (Ref. 32-00-00, P. Block 501).
On safety relay control simulator test set :
- place SIMULATION FLIGHT/GROUND CONFIGURATIONS switches in ground position.
- place NORMAL/TEST switches in TEST position.
- place SIMULATION/LANDING GEAR DOWNLOCKED switches in DOWNLOCKED position.
- place FLIGHT/GROUND switch 3XG in GROUND position.

(2)On panel 4VU
- make certain that landing gear Normal control lever is in **DOWN** position

(3)Between First Officer's and Third Occupant's seats
- make certain that landing gear Free Fall extension control handle is in Normal position.

R **WARNING : BEFORE INSTALLING THE GROUND SAFETY PINS, MAKE CERTAIN THAT**
R **THE LANDING GEAR IS DOWNLOCKED.**
R **THIS IS ACHIEVED BY CHECKING THAT :**
R **- IN FLIGHT COMPARTMENT, ON PANELS 400VU AND 76VU LH-NOSE-RH**
R **GREEN ARROWS ARE ON.**
R **- DOWNLOCK VISUAL INDICATORS ARE VISIBLE ON WINGS (MAIN GEARS)**
R **AND ON TELESCOPIC DRAG STRUT (NOSE GEAR).**

(4)Make certain that safety pins are installed on the nose gear telescopic strut and main gear lock link assembly.
WARNING : WHENEVER THE GROUND SAFETY PIN IS INSTALLED ON THE NOSE GEAR TELESCOPIC STRUT IT IS NECESSARY TO OPEN THE NOSE GEAR DOORS (REF 32-22-11, P. BLOCK 301) TO ALWAYS VISUALLY CHECK THAT :
- IT HAS COMPLETELY AND EASILY ROTATED THE FORK-TYPE LEVER OF THE GROUND LOCKING SYSTEM.
- ITS STOP FLANGE ABUTS AGAINST THE HOUSING OF THE TELESCOPIC STRUT LOCKING SYSTEM. (FULL INSERTION)
- BEFORE PRESSURIZING THE LANDING GEAR RETRACTION SYSTEM, THE NOSE GEAR DOORS MUST BE CLOSED (REF. 32-22-11, P. BLOCK 301).

(5)Position safety barriers prohibiting access to gear door travel ranges.
(6)Energize the aircraft electrical network (Ref. 24-41-00, P. Block 301).
(7)Make certain that electronics racks ventilation is correct.
(8)Make certain that the Green hydraulic reservoir is pressurized (Ref. 29-14-00, P. Block 301).
(9)On landing gear safety relay control simulator test set :
- place switch 8GA/9GA and switch 11GA/12GA in "TEST" position (bogie beam in flight configuration).
- the 6 **SIMULATION FLIGHT/GROUND CONFIGURATIONS** switches in **FLIGHT** position.

(10)Pressurize the Green hydraulic system by means of Green electric pumps (Ref. 29-21-00, P. Block 301) or by hydraulic ground power cart (Ref. 29-10-00, P. Block 301).

B. Check
WARNING : MAKE CERTAIN THAT THE LANDING GEAR GROUND SAFETIES ARE IN POSITION.
WARNING : MAKE CERTAIN THAT THE DOOR TRAVEL RANGES ARE CLEAR.
(1)Landing gear control lever from **DOWN** to Neutral.
(a)On panel 4VU
- place landing gear control lever in Neutral position.
- simultaneously observe one of the main gear doors.

(b)Correct operation
- the landing gear door being observed moves downwards slightly until it rests against its closed uplock hook. (The downward movement is caused by the depressurization of the door actuating cylinders).

(c)Faulty operation
- there is no downward movement of the gear door
  or
- all the landing gear doors fully open.

NOTE : The opening of the doors can occur with up to 2 min. delay.

(2)Landing gear Normal control lever from Neutral to UP.
(a)On panel 4VU
- place landing gear control lever in "UP" position

(b)Check that all the landing gear doors open.
(c)On panel 4VU
- place landing gear control lever in Neutral position.

(d)Correct operation
- doors can be moved manually in close direction (door actuating cylinders depressurized).

(e)Faulty operation
- doors cannot be moved manually in close direction (door actuating cylinders still pressurized).

(3)Corrective action
If any of the above cases of faulty operation are noted, replace electrovalve (Ref. 32-31-12, P. Block 401).

C. Close-Up

WARNING : MAKE CERTAIN THAT THE DOOR TRAVEL RANGES ARE CLEAR.

(1)Close landing gear doors
On panel 4VU
- place landing gear control lever in DOWN position.

(2)Not applicable
(3)Disconnect landing gear safety relay control simulator test set (Ref. 32-00-00, P. Block 501).
(4)Shut down hydraulic power supply (Ref. 29-21-00, P. Block 301) or (Ref. 29-10-00, P. Block 301).
(5)De-energize the aircraft electrical network (Ref. 24-41-00, P. Block 301).
(6)Remove the ground safety pin.

WARNING : WHEN THE GROUND SAFETY PIN IS REMOVED, VISUALLY CHECK THE DOWN POSITION OF THE FORK-TYPE LEVER ON THE TELSCOPIC STRUT GROUND LOCKING SYSTEM.

(7)Remove safety barriers.
(8)Remove all ground handling and maintenance equipment, standard and special tools, together with ground power and replenishing equipment, and miscellaneous items.

MAIN LANDING GEAR DOOR GROUND OPENING BYPASS VALVE (1232-1233)
REMOVAL/INSTALLATION

WARNING : CHECK THAT THE LANDING GEAR GROUND SAFETIES INCLUDING WHEEL CHOCKS ARE IN POSITION.
BEFORE APPLYING OR RELIEVING HYDRAULIC SYSTEM PRESSURE, MAKE CERTAIN THAT THE TRAVEL RANGES OF THE CONTROL SURFACES ARE CLEAR.
BEFORE PRESSURIZING HYDRAULIC SYSTEMS, CHECK THAT ALL CONTROLS ARE SET TO CORRESPOND WITH THE ACTUAL POSITION OF THE SERVICES THEY OPERATE.
BEFORE PRESSURIZING HYDRAULIC SYSTEMS, MAKE CERTAIN THAT HYDRAULIC SYSTEM UNDER MAINTENANCE HAS BEEN ISOLATED.
BEFORE POWER IS SUPPLIED TO THE AIRCRAFT, MAKE CERTAIN THAT ELECTRICAL CIRCUIT UPON WHICH WORK IS IN PROGRESS ARE ISOLATED.

1. Equipment and Materials

ITEM	DESIGNATION
A. 98A32301001000	Pin-Rigging, Landing Gear Emergency Lowering Control
B. 98A32201011000	Pin-Rigging
C. 97A29102035000	Connector-Pressurizing, Hydraulic Tank
D. 97A29102062000	Connector - Depressurizing, Hydraulic Tank
E. 99A29001006000	Unit-Topping Up, Hydraulic Tank (Hand Operated)
F.	Access Platforms 2.6 m (8 ft. 7 in.)
G.	Safety Barriers
H.	Hydraulic Fluid Container
J.	Blanking Plugs/Caps
K.	Warning Notices
L. Material No. 11-002	Cleaning Agents (Ref. 20-31-00)
Referenced Procedures	
- 12-12-29, P. Block 1	Hydraulics
- 29-10-00, P. Block 301	Main Hydraulic Power - Pressurization/ Depressurization
- 29-14-00, P. Block 301	Hydraulic Reservoir Pressurizing System
- 32-12-11, P. Block 301	Main Gear Main Door - (Ground Door(s) Opening)

2. Procedure

A. Job Set-Up
(1)On panel 4VU
- make certain that landing gear control lever is in **DOWN** position and prohibit its operation by displaying a warning notice.

(2)Between First Officer's and Third Occupant's seats :
- make certain that landing gear Free Full extension control handle is in Normal position.

(3)Position access platforms.
(4)Position safety barriers prohibiting access to door travel ranges.
WARNING : MAKE CERTAIN THAT THE DOOR TRAVEL RANGES ARE CLEAR.
(5)Open main gear door corresponding to bypass valve to be removed (Ref.

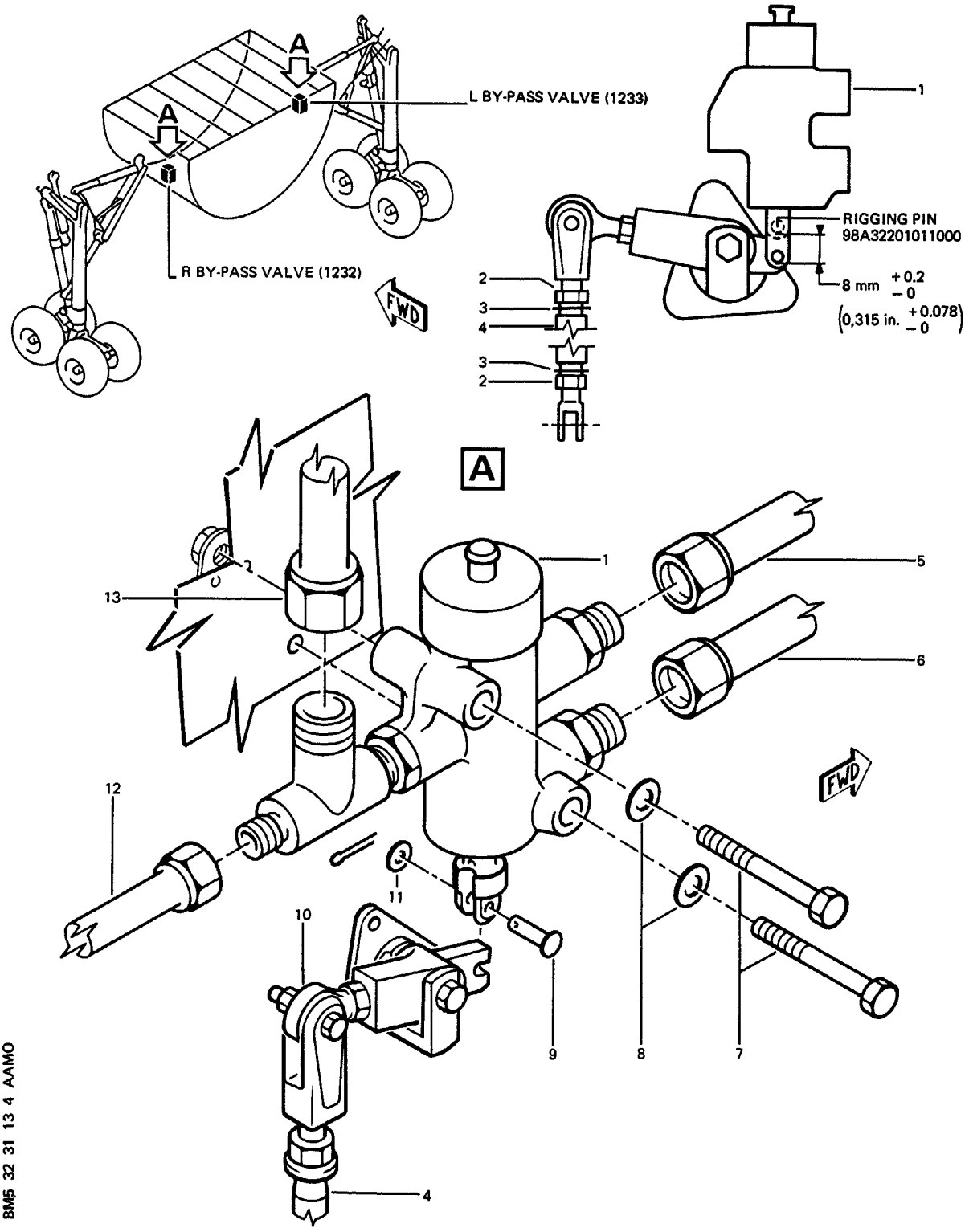
32-12-11, P. Block 301).
(6)Depressurize Green hydraulic reservoir (Ref. 29-14-00, P. Block 301) and prohibit its pressurization by displaying a warning notice :
- on panel 429VU to prohibit APU starting
- on reservoir pressurization connector.
(7)Depressurize Green hydraulic system (Ref. 29-10-00, P. Block 301) and prohibit its pressurization by displaying a warning notice :
- on Green hydraulic system ground connectors
- on panel 427VU to prohibit operation of Green electric pumps (ELEC PUMPS pushbutton switch).
(8)Gain access to bypass valve to be removed (zone 147/148).
(9)Position hydraulic fluid container.

B. Removal
(Ref. Fig. 401)
(1)Mark and disconnect lines (5), (6), (12) and (13); blank open line ends and ports on bypass valve (1).
(2)Remove bolts (7) and retain washers (8).
(3)Disconnect bypass valve (1) from bellcrank (10).

C. Preparation of Replacement Component
NOTE : The replacement bypass valve is filled with aircraft system hydraulic fluid (Ref. 20-31-00).
(1)Depreserve the replacement bypass valve by removing external protective coverings.
(2)Smear bypass valve slider with aircraft system hydraulic fluid and operate slider slowly to free seals which may be sticking. Carefully wipe the bypass valve clean.
(3)Clean removed parts with Material No. 11-002 and dry with filtered compressed air.
(4)If replacement component is supplied without hydraulic connectors, remove connectors from removed component, clean and check them for condition and install in replacement component together with new seals. Remove cotter pin from pin (9); retain pin (9) together with washer for installation on replacement bypass valve (1); check pin and washer and discard if necessary.

D. Installation
(1)Position bypass valve (1) on support.
(2)Install bolts (7) equipped with washers (8) on captive nuts. Tighten bolts (7).
(3)Remove blanking plugs/caps from lines (5), (6), (12) and (13) and valve (1) and connect lines.
(4)Connect bypass valve (1) slider to bellcrank (10) with pin (9), washer (11) and cotter pin.

E. Adjustment of Bypass Valve Control (Ref. Fig. 401)
(1)Place door ground opening control handle in OPENED position.
(a)Install rigging pin 98A32201011000 in slider of bypass valve (1).
(b)If necessary, adjust length of rod (4), until rigging pin contacts



Main Landing Gear Door Ground Opening Bypass Valve
Figure 401

valve body, as follows : cut and remove lockwire, disengage lockwashers (3) and loosen nuts (2).
Adjust rod to achieve required length.
NOTE : Check that rigging pin slides freely.
(c)Tighten nuts (2), engage lockwashers (3) and wirelock.
(2)Place door ground opening control handle in CLOSED position.
(a)Check that slider travel is 8 +0.2 - 0 mm (0.315 + 0.078 - 0 in.); if not, adjust bellcrank (10) adjustable eye end fitting.
(b)Place door ground opening control handle in OPENED position. Make certain that rigging pin 98A32201011000 contacts valve body and slides freely. Adjust rod (4) if necessary.
(c)Tighten and safety rod end fittings.
(3)Check that :
- when door ground opening control handle is placed in CLOSED position, rigging pin 98A32301001000 can be readily inserted in main gear door uplock release lever.
- when control handle is placed in OPENED position, rigging pin can be readily inserted in bypass valve slider and contacts valve body.
(4)Remove rigging pins.

F. Test
Perform door ground opening test (Ref. 32-31-00, P. Block 501).

G. Close-Up
(1)Remove hydraulic fluid container.
(2)Make certain that working area is clean and clear of tools and miscellaneous items of equipment.
(3)Top up hydraulic reservoirs if necessary.
(4)Pressurize Green hydraulic reservoir (Ref. 29-14-00, P. Block 301).
WARNING : MAKE CERTAIN THAT DOOR TRAVEL RANGES ARE CLEAR.
(5)Close main gear doors (Ref. 32-12-11, P. Block 301).
(6)Remove warning notices.
(7)Close access doors, remove access platform and safety barriers.
(8)Remove all ground handling and maintenance equipment, standard and special tools, together with ground power and replenishing equipment, all access equipment and miscellaneous items.

NOSE GEAR DOOR UPLOCK ASSY (1257-1258) - REMOVAL/INSTALLATION

WARNING : CHECK THAT THE LANDING GEAR GROUND SAFETIES INCLUDING WHEEL CHOCKS ARE IN POSITION.
BEFORE APPLYING OR RELIEVING HYDRAULIC SYSTEM PRESSURE, MAKE CERTAIN THAT THE TRAVEL RANGES OF THE CONTROL SURFACES ARE CLEAR.
BEFORE PRESSURIZING HYDRAULIC SYSTEMS, CHECK THAT ALL CONTROLS ARE SET TO CORRESPOND WITH THE ACTUAL POSITION OF THE SERVICES THEY OPERATE.
BEFORE POWER IS SUPPLIED TO THE AIRCRAFT, MAKE CERTAIN THAT ELECTRICAL CIRCUITS UPON WHICH WORK IS IN PROGRESS ARE ISOLATED.
BEFORE PRESSURIZING HYDRAULIC SYSTEMS, MAKE CERTAIN THAT HYDRAULIC SYSTEMS UNDER MAINTENANCE HAS BEEN ISOLATED.

1. Equipment and Material

ITEM	DESIGNATION
A. 97A29102035000	Connector-Pressurizing, Hydraulic Tank
B. 97A29102062000	Connector-Depressurizing, Hydraulic Tank
C. 99A29001006000	Unit-Topping Up, Hydraulic Tank (Hand Operated)
D. 98A32301000000	Pin-Rigging, Nose Gear Emergency Lowering Control
E. 98A32301003000	Pin-Rigging, Landing Gear Emergency Lowering Control
F. 98A32301009000	Pin-Rigging, Nose Gear Door Uplock Box Control
G.	Hydraulic Fluid Container
H.	Access Platform (2,6 mm) (8 ft. 7 in.)
J.	Blanking Plugs
K.	Warning Notices
L.	Circuit Breaker Safety Clips
M.	Safety Barriers
N. Material No. 04-004	Common Greases (Ref. 20-31-00)
P. Material No. 11-002	Cleaning Agents(Ref. 20-31-00)
Referenced Procedures	
- 12-12-29, P. Block 1	Hydraulics
- 24-41-00, P. Block 301	AC External Power Control
- 29-10-00, P. Block 301	Main Hydraulic Power - Pressurization/ Depressurization
- 29-14-00, P. Block 301	Hydraulic Reservoir Pressurizing System
R	
- 32-12-11, P. Block 301	Main Gear Main Door - (Ground Door(s) Opening)
- 32-22-11, P. Block 301	Nose Gear Main Door - (Ground Door(s) Opening)
- 32-22-11, P. Block 501	Nose Gear Main Door
- 32-30-00, P. Block 501	Extension Retraction
- 32-31-16, P. Block 401	Nose Gear Door Actuating Cylinder
- 32-33-00, P. Block 501	Free Fall Extension

2. Procedure

A. Job Set-Up

(1)On panel 4VU
- make certain that landing gear control lever is in **DOWN** position and prohibit its operation by displaying a warning notice.

(2)Between First Officer's and Third Occupant's seats
- make certain that Free Fall extension control handle is in Normal position.

(3)Open, safety and tag the following circuit breakers :

PANEL	SERVICE	IDENT.	LOCATION
133VU	HYDRAULIC/L/G PROX DET/& RELAYS SYS 1/GEAR DN &/CTR PNL	3GB	333/U53
133VU	HYDRAULIC/L/G PROX DET/ & RELAYS SYS 2/GEAR DOWN &/OVHD PNL/POS IND	83GB	331/V51

(4)Position access platform.
(5)Position safety barriers prohibiting access to gear door travel ranges.
WARNING : MAKE CERTAIN THAT THE DOOR TRAVEL RANGES ARE CLEAR.
(6)Open right main gear door and nose gear doors (Ref. 32-12-11, P. Block 301 and 32-22-11, P. Block 301).
WARNING : WHEN DOORS ARE OPEN MAKE CERTAIN THAT SAFETY COLLARS ARE POSITIONED ON DOOR ACTUATING CYLINDERS.
(7)Depressurize Green hydraulic reservoir (Ref. 29-14-00, P. Block 301) and prohibit its pressurization by displaying a warning notice :
- on panel 429VU to prohibit APU starting
- on hydraulic reservoir pressurization connector.

(8)Depressurize
(a)Green hydraulic system (Ref. 29-10-00, P. Block 301) and prohibit its pressurization by displaying a warning notice
- on panel 427VU, to prohibit operation of Green electric pumps (**ELEC PUMPS** pushbutton switch).

(9)Position hydraulic fluid container.

B. Removal
(Ref. Fig. 401, 403)

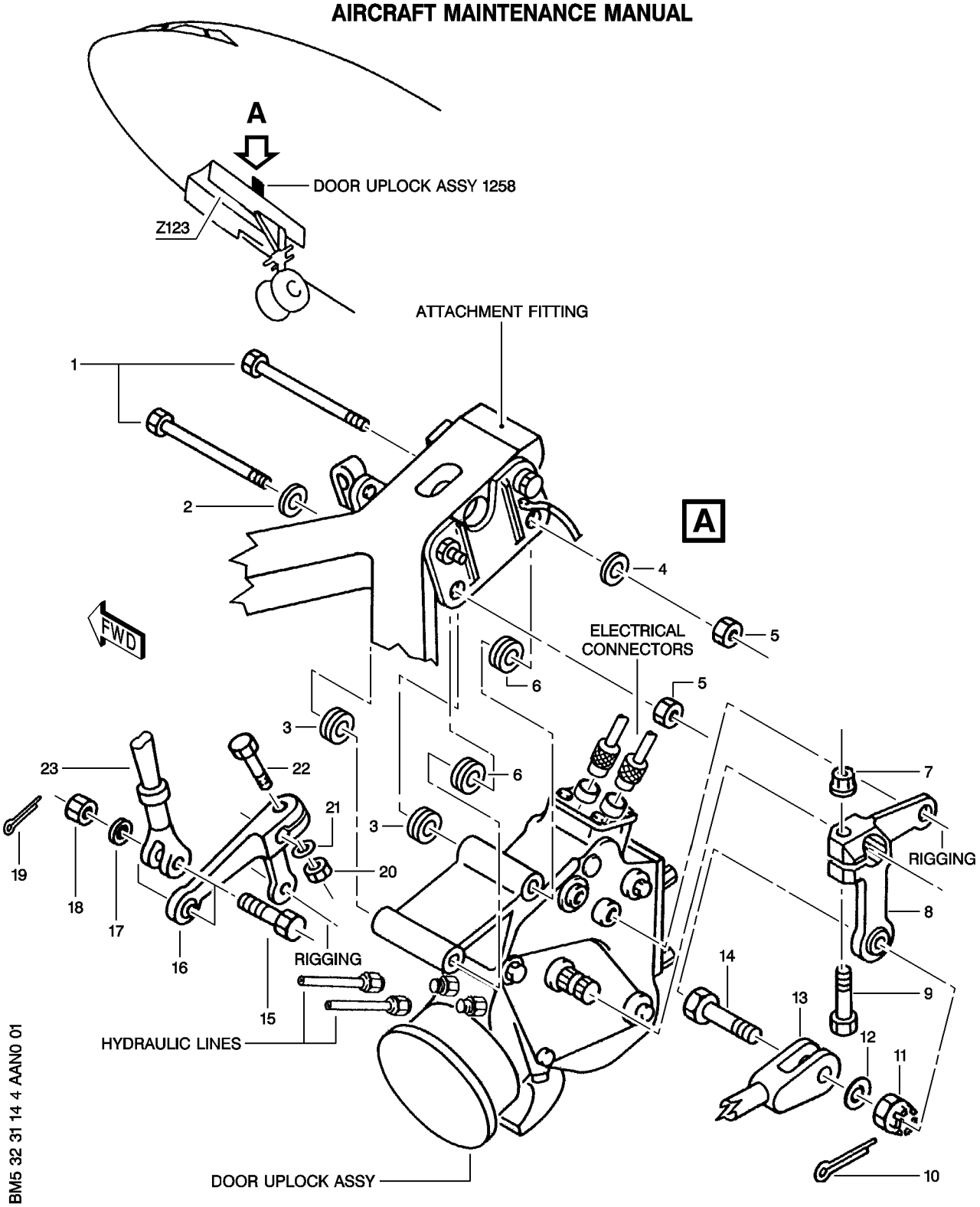
**ON A/C ALL

R Post SB 32-2078 For A/C ALL

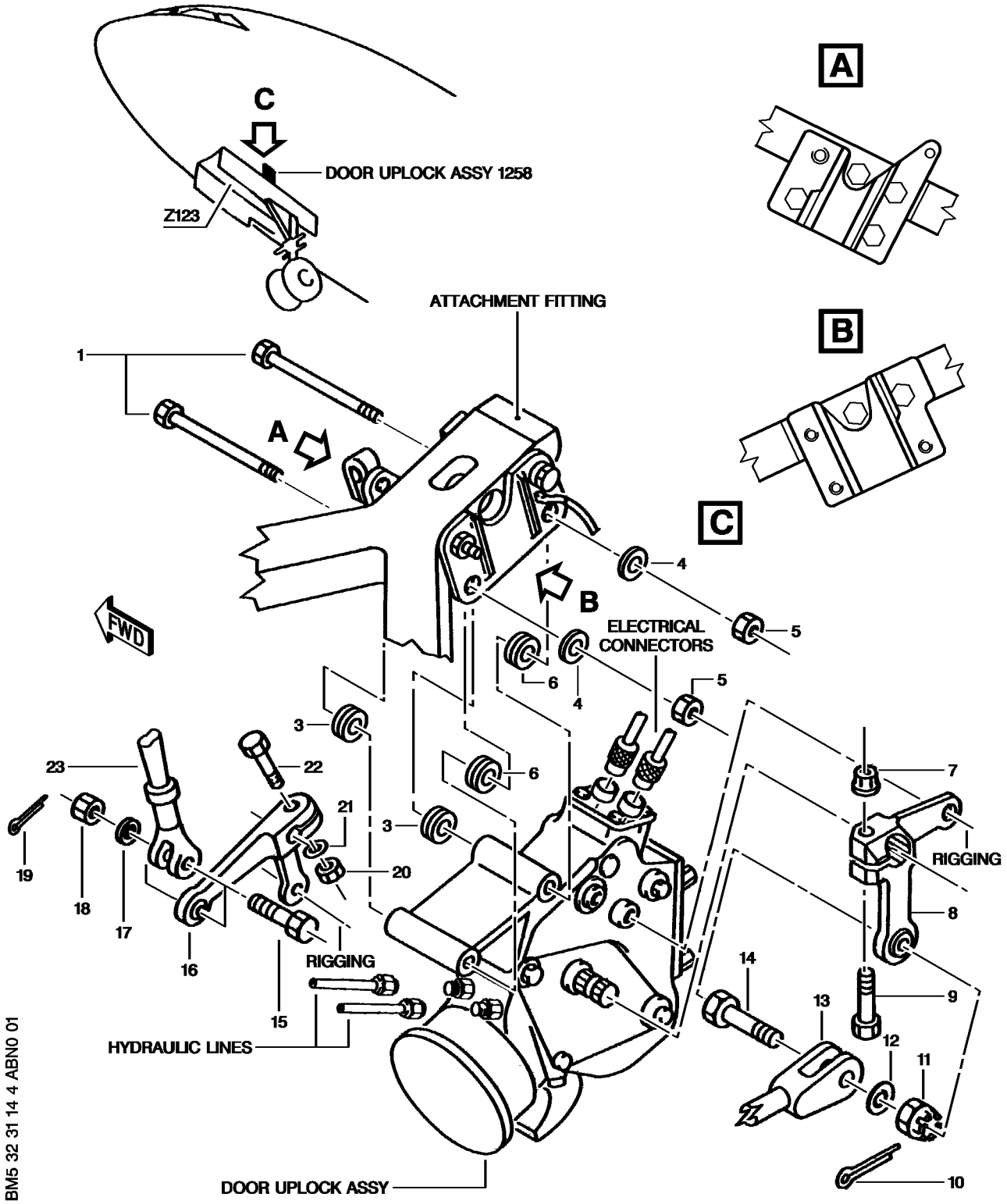
(Ref. Fig. 402, 404)

**ON A/C ALL

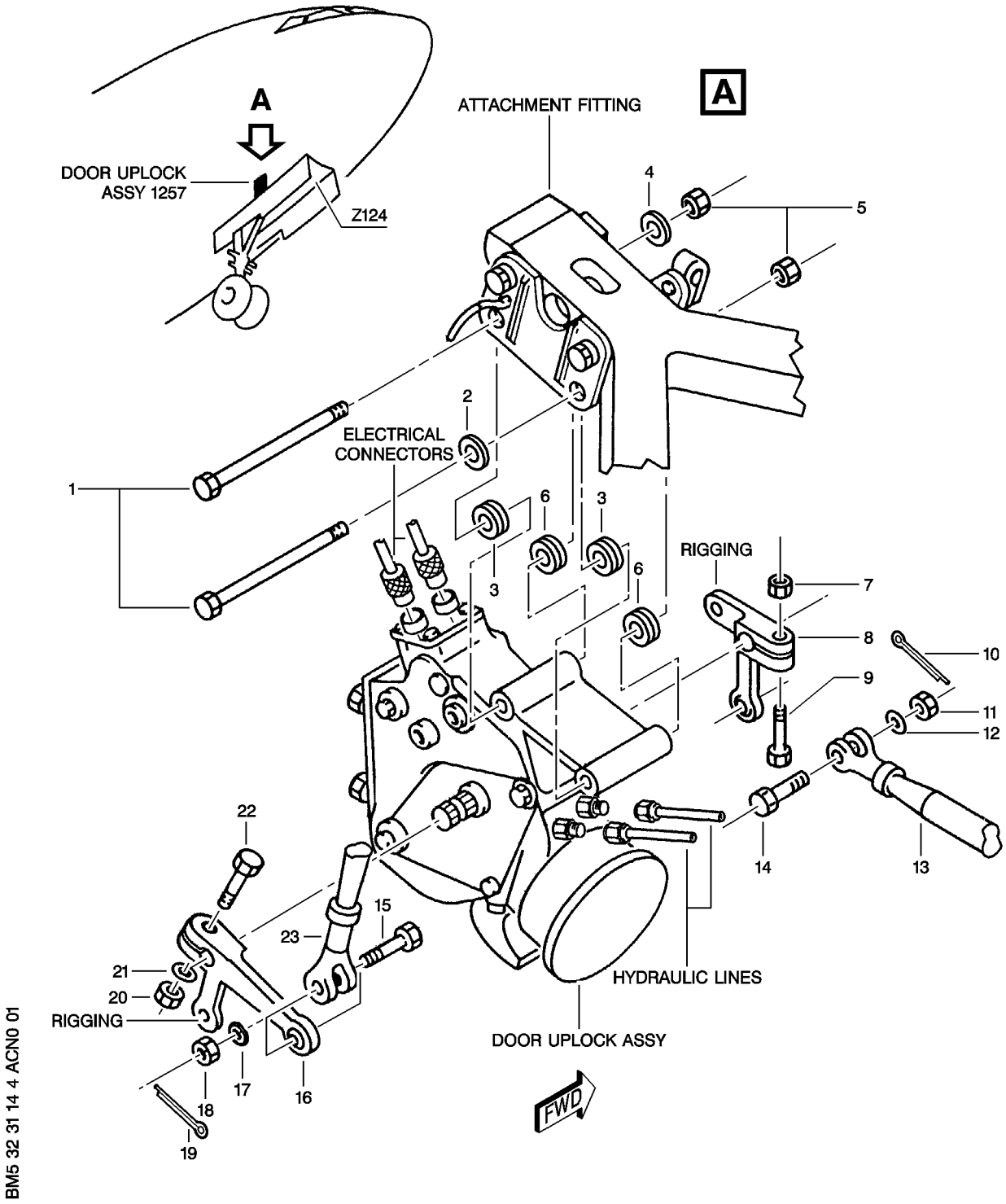
(1)Mark, disconnect and blank off hydraulic lines.
(2)Disconnect and cap electrical connectors.



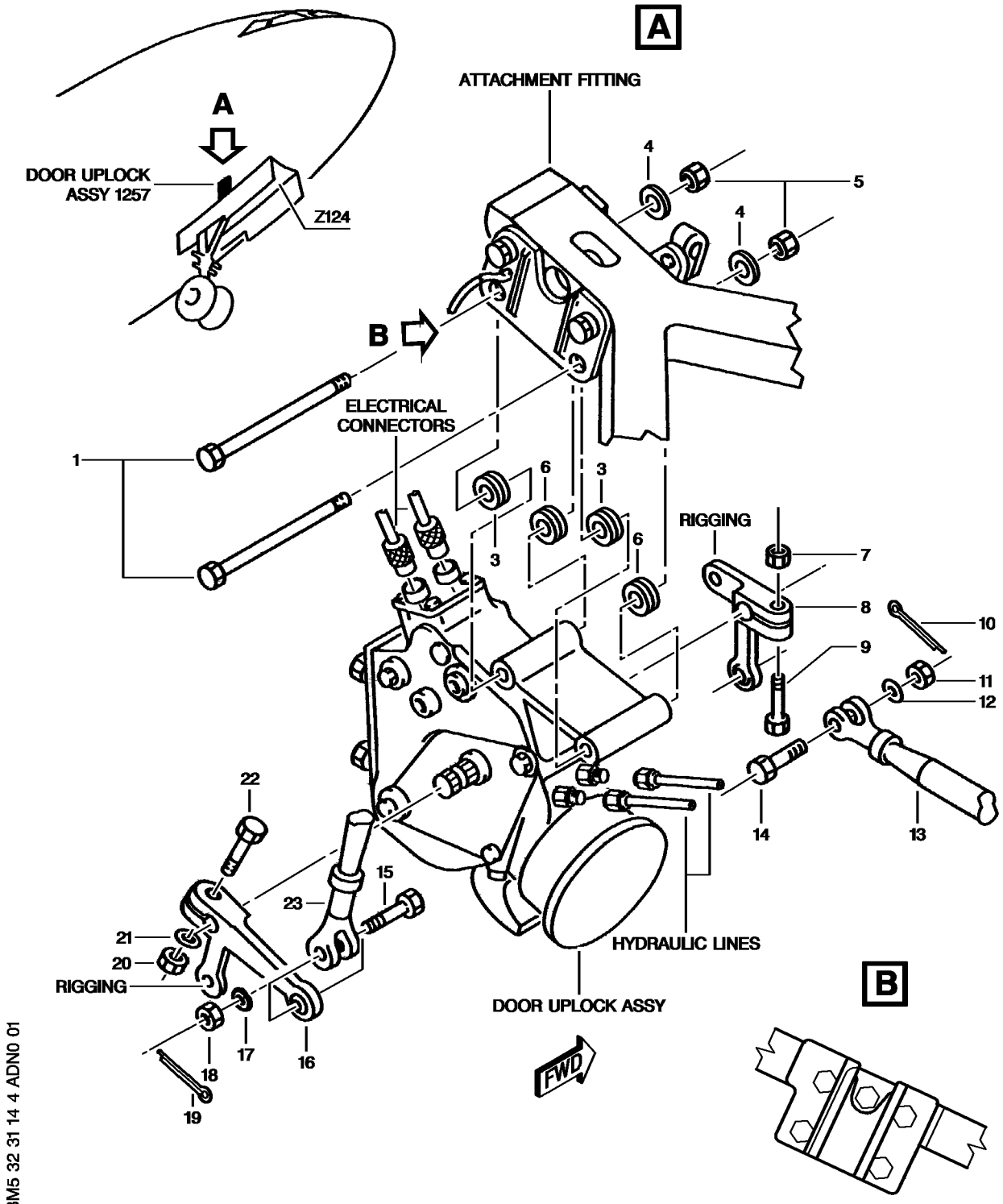
Nose Gear - LH Door Uplock Assembly
Figure 401



Nose Gear - Left Door Uplock Assembly
Figure 402



Nose Gear - RH Door Uplock Assembly
Figure 403



Nose Gear - RH Door Uplock Assembly
Figure 404

(3)Disconnect Free Fall extension control rod (23). Remove cotter pin (19), nut (18), washer (17), and bolt (15).
(4)Disconnect rod (13). Remove cotter pin (10), nut (11), washer (12), and bolt (14).
(5)Remove uplock.
Remove nuts (5), remove bolts (1) and retain washers (2-3-4-6) for reinstallation.

C. Preparation of Replacement Component
(Ref. Fig. 401, 403)
NOTE: Replacement uplock is filled with aircraft system hydraulic fluid (Ref. 20-31-00).
(1)On removed uplock :
(a)Remove nut (7) and bolt (9) and remove lever (8) from splined shaft.
(b)Remove nut (20), washer (21), bolt (22) and remove lever (16) from splined shaft.
(2)On replacement uplock :
(a)Depreserve replacement uplock. Clean with Material No.11-002 and dry with filtered compressed air.
(b)Make certain that parts to be installed are in correct condition (replace any damaged parts).
(c)Install lever (16) on splined shaft with bolt (22), washer (21), nut (20).
(d)Install lever (8) on splined shaft with bolt (9) and nut (7).
NOTE : Foolproofing feature ensures correct installation of lever on splined shaft.
(f)If replacement component is supplied without hydraulic unions etc..., recover the unions installed on removed component, clean and check them for correct condition and install on replacement component with new seals.

D. Installation

(Ref. Fig. 401, 405, 403)

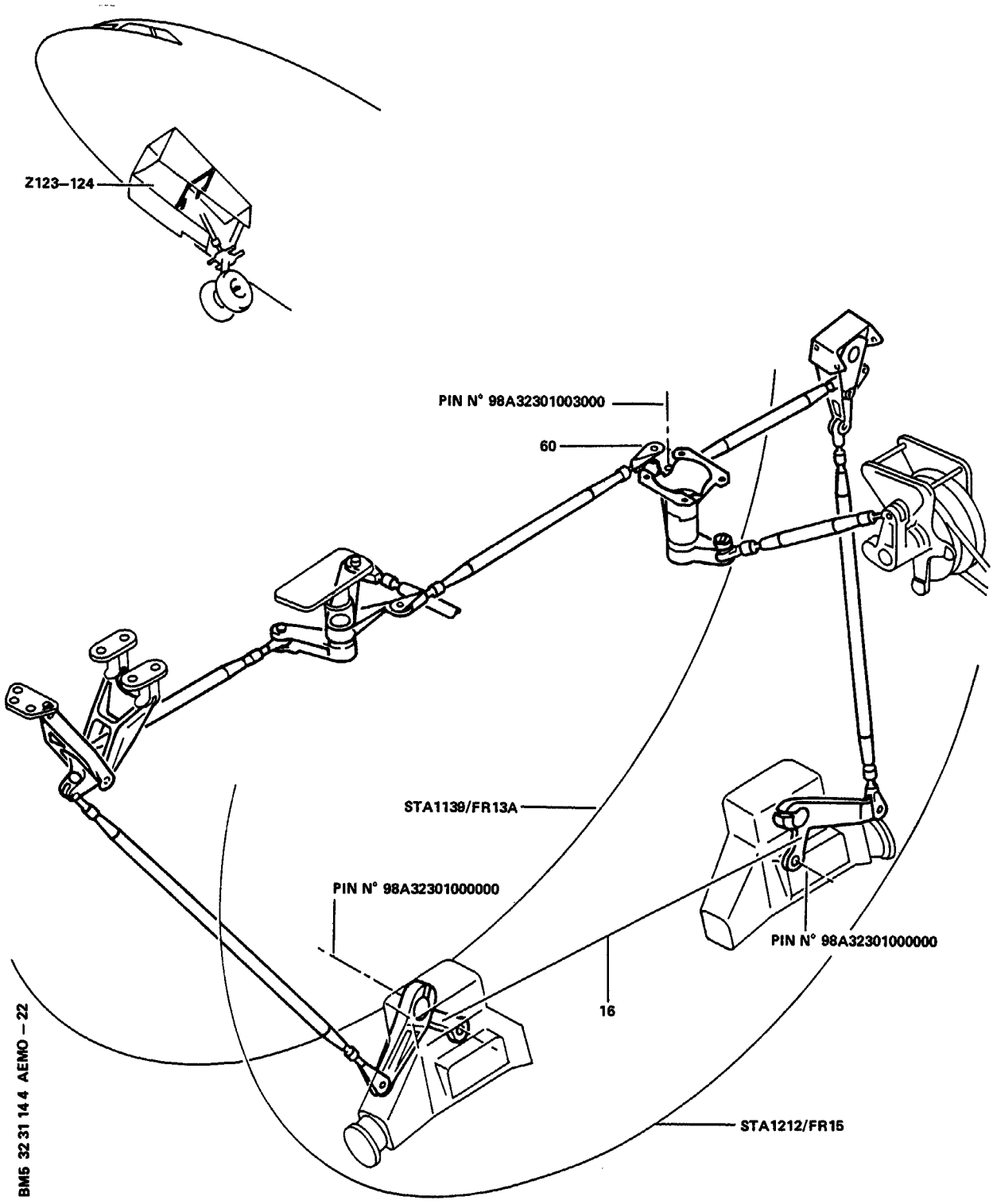
**ON A/C ALL

R Post SB 32-2078 For A/C ALL

(Ref. Fig. 402, 405, 404)

R **ON A/C ALL

(1)Install uplock with bolts (1), washers (2-3-4-6), positioned according to marking made during removal, and nuts (5).
WARNING : MAKE CERTAIN THAT BOLTS (1) ARE CORRECTLY ORIENTATED. THE BOLTS HEADS MUST FACE THE FREE FALL MECHANISM CONTROL



Nose Gear - Door Uplock Assembly - Adjustment
Figure 405

ROD (23). INCORRECT INSTALLATION OF THE BOLTS COULD JAM THE NLG FREE FALL MECHANICAL LINKAGE.

(2)Connect electrical connectors.
(3)Connect hydraulic lines.
(4)Disconnect actuating cylinder from door concerned (Ref. 32-31-16, P. Block 401).
NOTE : Make certain that disconnected actuating cylinder does not foul door and prevent manual closing of same.
(5)Manually close door
- make certain that door bears against from door stop and check setting of uplock (position of roller in uplock hook) (Ref. 32-22-11, P. Block 501).
(6)Open door and connect actuating cylinder (Ref. 32-31-16, P. Block 401).
(7)On uplock, rig Free Fall extension control lever (16) with rigging pin 98A32301000000.
(8)Rig crank (60) with rigging pin 98A32301003000.
(9)Connect rod (23) to lever (16) with bolt (15), washer (17), nut (18), and cotter pin (19). Adjust length of rod (23) if necessary.
WARNING : MAKE CERTAIN THAT BOLT (15) IS CORRECTLY ORIENTED. THE BOLT HEAD MUST FACE THE UPLOCK CASING. INCORRECT INSTALLATION OF THE BOLT COULD JAM THE NLG FREE FALL MECHANICAL LINKAGE.
(10)Make certain that lever (8) is in "locked" position.
(11)Rig lever (8) on uplock with rigging pin 98A32301009000.
(12)Connect rod (13) to lever (8) with bolt (14), washer (12), nut (11) and cotter pin (10). Adjust length of rod (13) if necessary.
(13)Remove rigging pin 98A32301009000 and restore lever (8) to "unlocked" position.
CAUTION : PRIOR TO INITIAL CLOSING OF DOORS USING HYDRAULIC PRESSURE, MAKE CERTAIN THAT UPLOCK HOOK CONCERNED IS IN UNLOCKED POSITION.
(14)Remove rigging pins 98A32301003000 from crank (60) and 98A32301000000 from control lever (16).

E. Tests
(1)Carry out a Ground door opening and closing test (Ref. 32-31-00, P. Block 501).
R (2)Carry out the operational test of the landing gear free fall control
R system, aircraft resting on its wheels (Ref. 32-33-00, P. Block 501).

F. Close-Up
(1)Remove hydraulic fluid container.
(2)Make certain that working area is clean and clear of tools and miscellaneous items of equipment.
(3)Pressurize hydraulic reservoirs (Ref. 29-14-00, P. Block 301).
(4)Remove safety clips and tags and close circuit breakers 3GB and 83GB.
WARNING : MAKE CERTAIN THAT DOOR TRAVEL RANGES ARE CLEAR.
(5)Close landing gear doors (Ref. 32-31-00, P. Block 501).
(6)Replenish hydraulic reservoirs if necessary (Ref. 12-12-29, P. Block 1).
(7)Remove warning notices
(8)Close access doors, remove access platform and safety barriers.

(9)Remove all ground handling and maintenance equipment standard and special tools, together with ground power and replenishing equipment, all access equipment and miscellaneous items.

**ON A/C ALL

R Post SB 32-2078 For A/C ALL

(1)Install uplock with bolts (1), washers (3-4-6), positioned according to marking made during removal, and nuts (5).
WARNING : MAKE CERTAIN THAT BOLTS (1) ARE CORRECTLY ORIENTATED. MAKE SURE THAT THE BOLTS HEADS FACE THE FOOL PROOF DEVICES ON THE UPLOCK. INCORRECT INSTALLATION OF THE BOLTS HEADS COULD JAM THE NLG FREE FALL MECHANICAL LINKAGE.
(2)Connect electrical connectors.
(3)Connect hydraulic lines.
(4)Disconnect actuating cylinder from door concerned (Ref. 32-31-16, P. Block 401).
NOTE : Make certain that disconnected actuating cylinder does not foul door and prevent manual closing of same.
(5)Manually close door
- make certain that door bears against from door stop and check setting of uplock (position of roller in uplock hook) (Ref. 32-22-11, P. Block 501).
(6)Open door and connect actuating cylinder (Ref. 32-31-16, P. Block 401).
(7)On uplock, rig Free Fall extension control lever (16) with rigging pin 98A32301000000.
(8)Rig crank (60) with rigging pin 98A32301003000.
(9)Connect rod (23) to lever (16) with bolt (15), washer (17), nut (18), and cotter pin (19). Adjust length of rod (23) if necessary.
WARNING : MAKE CERTAIN THAT BOLT (15) IS CORRECTLY ORIENTED. THE BOLT HEAD MUST FACE THE UPLOCK CASING. INCORRECT INSTALLATION OF THE BOLT COULD JAM THE NLG FREE FALL MECHANICAL LINKAGE.
(10)Make certain that lever (8) is in "locked" position.
(11)Rig lever (8) on uplock with rigging pin 98A32301009000.
(12)Connect rod (13) to lever (8) with bolt (14), washer (12), nut (11) and cotter pin (10). Adjust length of rod (13) if necessary.
(13)Remove rigging pin 98A32301009000 and restore lever (8) to "unlocked" position.
CAUTION : PRIOR TO INITIAL CLOSING OF DOORS USING HYDRAULIC PRESSURE, MAKE CERTAIN THAT UPLOCK HOOK CONCERNED IS IN UNLOCKED POSITION.
(14)Remove rigging pins 98A32301003000 from crank (60) and 98A32301000000 from control lever (16).

E. Tests

(1)Carry out a Ground door opening and closing test (Ref. 32-31-00, P. Block 501).
(2)Carry out the operational test of the landing gear free fall control system, aircraft resting on its wheels (Ref. 32-33-00, P. Block 501).

F. Close-Up
(1)Remove hydraulic fluid container.
(2)Make certain that working area is clean and clear of tools and miscellaneous items of equipment.
(3)Pressurize hydraulic reservoirs (Ref. 29-14-00, P. Block 301).
(4)Remove safety clips and tags and close circuit breakers 3GB and 83GB.
WARNING : MAKE CERTAIN THAT DOOR TRAVEL RANGES ARE CLEAR.
(5)Close landing gear doors (Ref. 32-31-00, P. Block 501).
(6)Replenish hydraulic reservoirs if necessary (Ref. 12-12-29, P. Block 1).
(7)Remove warning notices
(8)Close access doors, remove access platform and safety barriers.
(9)Remove all ground handling and maintenance equipment standard and special tools, together with ground power and replenishing equipment, all access equipment and miscellaneous items.

NOSE GEAR DOOR UPLOCK ASSY (1257-1258) - INSPECTION/CHECK

WARNING : CHECK THAT THE LANDING GEAR GROUND SAFETIES INCLUDING WHEEL CHOCKS ARE IN POSITION.
BEFORE APPLYING OR RELIEVING HYDRAULIC SYSTEM PRESSURE, MAKE CERTAIN THAT THE TRAVEL RANGES OF THE CONTROL SURFACES ARE CLEAR.
BEFORE PRESSURIZING HYDRAULIC SYSTEMS, CHECK THAT ALL CONTROLS ARE SET TO CORRESPOND WITH THE ACTUAL POSITION OF THE SERVICES THEY OPERATE.
BEFORE POWER IS SUPPLIED TO THE AIRCRAFT, MAKE CERTAIN THAT ELECTRICAL CIRCUITS UPON WHICH WORK IS IN PROGRESS ARE ISOLATED.
BEFORE PRESSURIZING HYDRAULIC SYSTEMS, MAKE CERTAIN THAT HYDRAULIC SYSTEMS UNDER MAINTENANCE HAVE BEEN ISOLATED.

1. Reason for the Job
Check of the nose gear door uplock assy.
Aircraft configuration : aircraft on its wheels.

2. Equipment and Materials

ITEM	DESIGNATION
A.	Access Platform (2.60 m) (8 ft 7 in.)
B.	Safety Barriers
C.	Dynamometer 0 to 10 daN (0 to 22.48 lbf.)
D. J47893	Measuring Tool - Load
E.	Warning Notice
Referenced Procedures	
- 32-22-11, P. Block 301	Nose Gear Main Door (Ground Door(s) Opening)
- 32-31-14, P. Block 401	Nose Gear Door Uplock Assembly

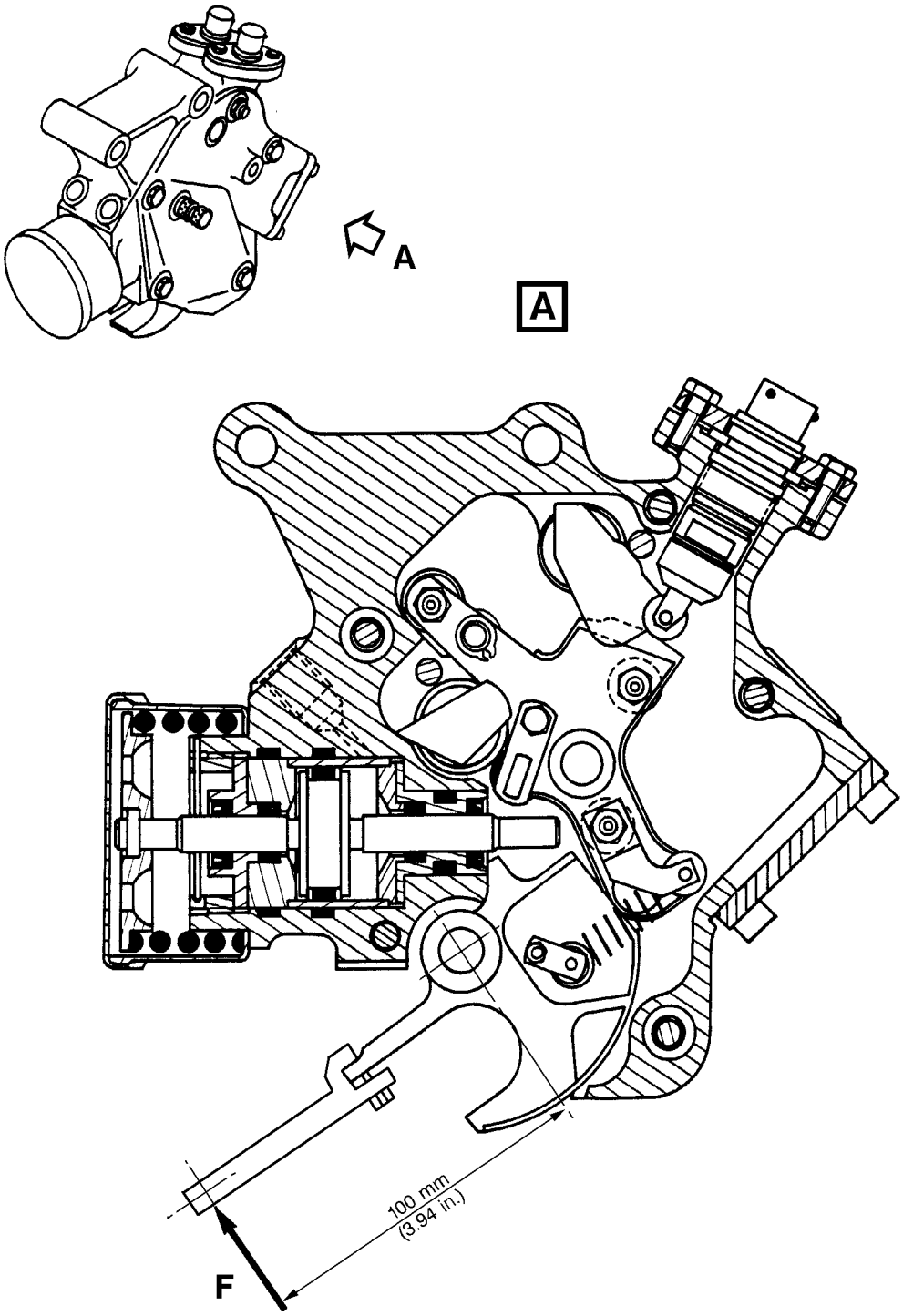
3. Procedure

A. Job Set-Up
(1)On panel 4VU
- make certain that landing gear Normal control lever is in **DOWN** position and prohibit its operation by displaying a warning notice.

(2)Between First Officer's and Third Occupant's seats :
- make certain that Free Fall extension control handle is in Normal position and prohibit its operation by displaying a warning notice.

(3)Position access platform.
(4)Position safety barriers prohibiting access to gear door travel ranges.
WARNING : MAKE CERTAIN THAT THE DOOR TRAVEL RANGES ARE CLEAR.
(5)Open nose gear doors using door ground opening control (Ref. 32-22-11, P. Block 301).
WARNING : WHEN DOORS ARE OPEN MAKE CERTAIN THAT SAFETY COLLARS ARE POSITIONED ON DOOR ACTUATING CYLINDERS.

B. Check
(Ref. Fig. 601)
(1)Manually open and close hook to detect possible abnormal friction.



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Nose Gear Door Uplock Assy
Figure 601

(2)Check that hook opens freely.
(3)Check springs for correct condition.
(a)Place hook in open position.
(b)Using tool J47893 and a dynamometer, apply a load F perpendicular to the tool.
This load increases at the beginning of the hook closing and decreases during the hook locking phase.
(c)Note maximum value of load F just before the beginning of the locking phase.
(4)Approval criteria
(a)A load (F) lower than the minimum values leads to suppose that one of the springs is broken. This load is measured on new uplocks (F min new) or used uplocks (F min used) :

F min new = 1.9 daN (4.27 lbf.).

F min used = 1.14 daN (2.56 lbf.).

(b)If load (F) is lower than the minimum values, remove nose gear door uplock assy and check uplock assy in workshop.
(Ref. 32-31-14, P. Block 401).

C. Close-Up
WARNING : MAKE CERTAIN THAT THE DOOR TRAVEL RANGES ARE CLEAR.
(1)Close nose gear doors using door ground opening control
(Ref. 32-22-11, P. Block 301).
(2)Remove warning notices.
(3)Remove safety barriers.
(4)Remove access platform.

NOSE LANDING GEAR DOOR GROUND OPENING BYPASS VALVE (1266-1267) REMOVAL/INSTALLATION

WARNING : CHECK THAT THE LANDING GEAR GROUND SAFETIES INCLUDING WHEEL CHOCKS ARE IN POSITION.
BEFORE APPLYING OR RELIEVING HYDRAULIC SYSTEM PRESSURE, MAKE CERTAIN THAT THE TRAVEL RANGES OF THE CONTROL SURFACES ARE CLEAR.
BEFORE PRESSURIZING HYDRAULIC SYSTEMS, CHECK THAT ALL CONTROLS ARE SET TO CORRESPOND WITH THE ACTUAL POSITION OF THE SERVICES THEY OPERATE.
BEFORE PRESSURIZING HYDRAULIC SYSTEMS, MAKE CERTAIN THAT HYDRAULIC SYSTEM UNDER MAINTENANCE HAS BEEN ISOLATED.
BEFORE POWER IS SUPPLIED TO THE AIRCRAFT, MAKE CERTAIN THAT ELECTRICAL CIRCUIT UPON WHICH WORK IS IN PROGRESS ARE ISOLATED.

1. Equipment and Materials

	ITEM	DESIGNATION
	A. 98A32301000000	Pin-Rigging, Nose Gear Emergency Lowering Control
	B. 98A32201011000	Pin-Rigging
	C. 97A29102035000	Connector-Pressurizing, Hydraulic Tank
	D. 99A29001006000	Unit - Topping Up, Hydraulic Tank (Hand Operated)
R	E. 98A20003008000	Crimping tool
R	F.	Hydraulic Fluid Container
R	G.	Access Platforms 2 m - 2.6 m (6 ft. 7 in. - 8 ft. 7 in.)
R	H.	Blanking Plugs/Caps
R	J.	Safety Barriers
R	K.	Warning Notices
R	L. Material No. 11-002	Cleaning Agents (Ref. 20-31-00)
	Referenced Procedures	
	- 12-12-29, P. Block 1	Hydraulic Reservoir - Replenishing
	- 29-10-00, P. Block 301	Main Hydraulic Power - Pressurization/ Depressurization
	- 29-14-00, P. Block 301	Hydraulic Reservoir - Pressurization/ Depressurization
	- 32-12-11, P. Block 301	Main Gear Main Door - (Ground Door(s) Opening)
	- 32-22-11, P. Block 301	Nose Gear Main Door - (Ground Door(s) Opening)
	- 32-31-00, P. Block 501	Normal Extension and Retraction

2. Procedure

A. Job Set-Up
(1)On panel 4VU
- make certain that landing gear control lever is in **DOWN** position and prohibit its operation by displaying a warning notice.

(2)Between First Officer's and Third Occupant's seats :
- make certain that landing gear Free Full extension control handle is

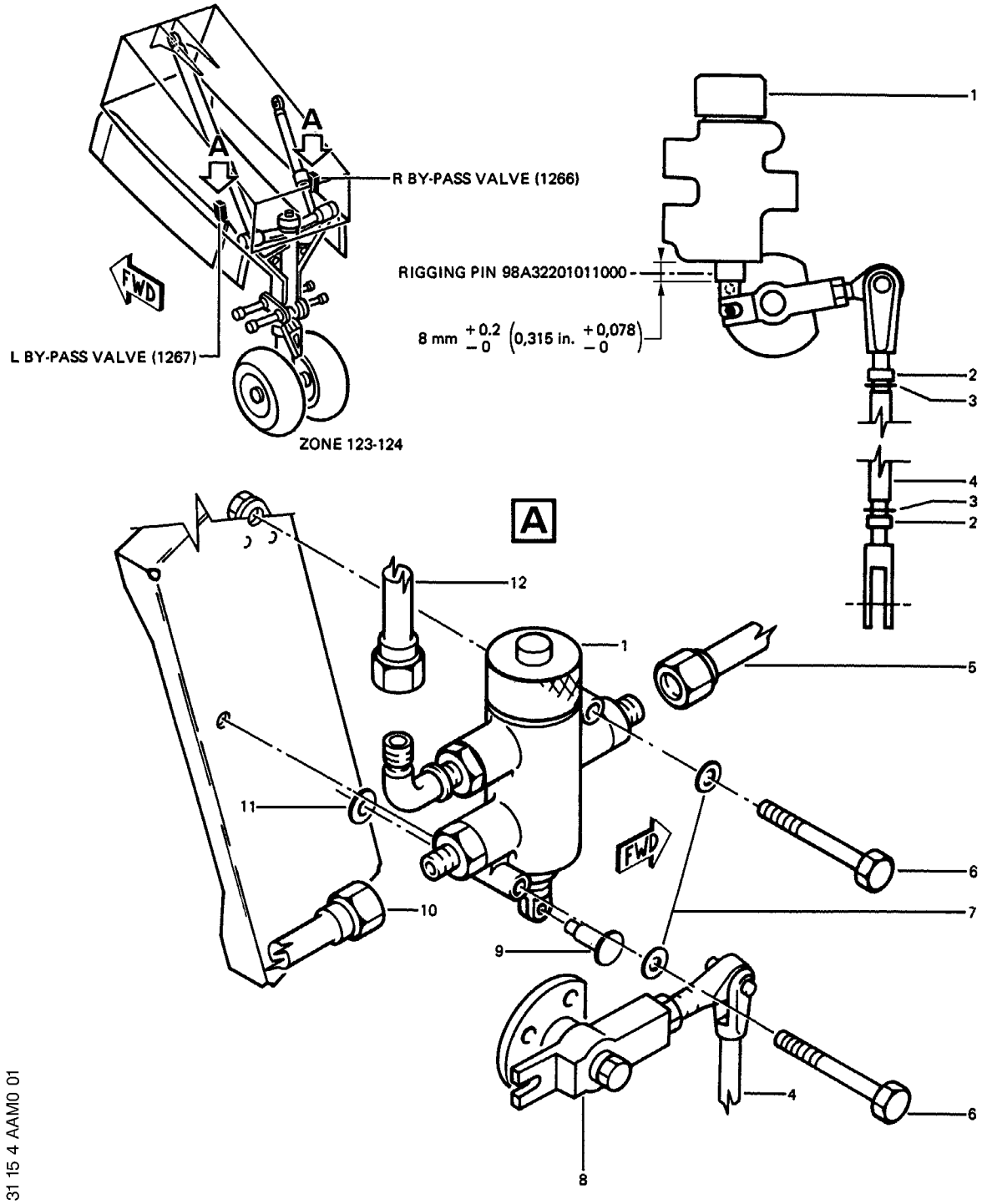
in Normal position.
(3)Position access platforms.
(4)Position safety barriers prohibiting access to door travel ranges.
WARNING : MAKE CERTAIN THAT THE DOOR TRAVEL RANGES ARE CLEAR.
(5)Open nose and right main landing gear doors (Ref. 32-12-11, P. Block 301 and 32-22-11, P. Block 301).
WARNING : WHEN DOORS ARE OPEN, MAKE CERTAIN THAT SAFETY COLLARS ARE POSITIONED ON DOOR ACTUATING CYLINDERS.
(6)Depressurize Green hydraulic reservoir (Ref. 29-14-00, P. Block 301) and prohibit its pressurization by displaying a warning notice :
- on panel 429VU to prohibit APU starting
- on reservoir pressurization connector.
(7)Depressurize Green hydraulic system (Ref. 29-10-00, P. Block 301) and prohibit its pressurization by displaying a warning notice :
- on Green hydraulic system ground connectors
- on panel 427VU to prohibit operation of Green electric pumps (ELEC PUMPS pushbutton switch).
(8)Position hydraulic fluid container.

B. Removal (Ref. Fig. 401)
(1)Mark and disconnect lines (5), (10) and (12).
(2)Blank open ends of lines (5), (10) and (12) and ports on bypass valve (1).
(3)Remove bolts (6) and retain washers (7).
(4)Disconnect bypass valve (1).

C. Preparation of Replacement Component
NOTE : The replacement bypass valve is filled with aircraft system hydraulic fluid (Ref. 20-31-00).
(1)Depreserve the replacement bypass valve by removing external protective coverings. Clean with Material No. 11-002 and dry with filtered compressed air.
(2)Smear bypass valve (1) slider with aircraft system hydraulic fluid and operate slider slowly to free seals which may be sticking. Carefully wipe the bypass valve (1) clean.
(3)Clean removed parts with Material No. 11-002 and dry with filtered compressed air.
(4)Check condition of parts required for installation of bypass valve (1).
R (5)With crimping tool 98A20003008000, crimp a new pin (9) equipped with washer (11) on the replacement bypass valve (1) slider.

D. Installation

(1)Position bypass valve (1) connecting bellcrank (8) and secure bypass valve (1) with bolts (6) and washers (7).
(2)Remove blanking plugs/caps from lines (5), (10) and (12) and bypass valve (1) and connect lines.
(3)Place door ground opening control handle in OPENED position.
(4)Rig bypass valve (1) slider with rigging pin 98A32201011000 and retract slider until rigging pin contacts valve body.
(5)Connect rod (4); if necessary, adjust length of rod (4) as follows : cut



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Nose Landing Gear Door Ground Opening Bypass Valve (1266-1267)
Figure 401

R

and remove lockwire, disengage lockwashers (3) and loosen nuts (2). Adjust rod to achieve required length.
NOTE : Check that rigging pin slides freely.
(6)Tighten nuts (2), engage lockwashers (3) and wirelock.
(7)Place door ground opening control handle in **CLOSED** position.
(8)Check that the vertical distance between the lower side of the valve body and the rigging pin is 8 +0.2 - 0 mm (0.315 + 0.078 - 0 in.); if not, adjust bellcrank (8) adjustable eye end fitting.
(9)Operate door ground opening control handle several times and check that :
(a)In **OPENED** and **CLOSED** positions, torque shaft is in stop positions.
(b)In **CLOSED** position, rigging pin 98A32301000000 can be readily inserted in nose gear door uplock release lever.
(c)In **OPENED** position, rigging pin 98A32201011000 can be readily inserted in bypass valve slider and contacts valve body.
(d)Remove rigging pins.

E. Test
(1)Perform door ground opening test (Ref. 32-31-00, P. Block 501). Check for external leakage of bypass valve and hydraulic connectors.

F. Close-Up
(1)Remove hydraulic fluid container.
(2)Make certain that working area is clean and clear of tools and miscellaneous items of equipment.
(3)Pressurize hydraulic reservoirs (Ref. 29-14-00, P. Block 301).
WARNING : **MAKE CERTAIN THAT DOOR TRAVEL RANGES ARE CLEAR.**
(4)Close main and nose gear doors (Ref. 32-12-11, P. Block 301 and 32-22-11, P. Block 301).
(5)Top up hydraulic reservoirs if necessary.
(6)Remove warning notices.
(7)Close access doors, remove access platforms and safety barriers.
(8)Remove all ground handling and maintenance equipment, standard and special tools, together with ground power and replenishing equipment, all access equipment and miscellaneous items.

NOSE GEAR DOOR ACTUATING CYLINDER (1251-1252) - REMOVAL/INSTALLATION

WARNING : CHECK THAT THE LANDING GEAR GROUND SAFETIES INCLUDING WHEEL CHOCKS ARE IN POSITION.
BEFORE APPLYING OR RELIEVING HYDRAULIC SYSTEM PRESSURE, MAKE CERTAIN THAT THE TRAVEL RANGES OF THE CONTROL SURFACES ARE CLEAR.
BEFORE PRESSURIZING HYDRAULIC SYSTEMS, CHECK THAT ALL CONTROLS ARE SET TO CORRESPOND WITH THE ACTUAL POSITION OF THE SERVICES THEY OPERATE.
BEFORE POWER IS SUPPLIED TO THE AIRCRAFT, MAKE CERTAIN THAT ELECTRICAL CIRCUITS UPON WHICH WORK IS IN PROGRESS ARE ISOLATED.
BEFORE PRESSURIZING HYDRAULIC SYSTEMS, MAKE CERTAIN THAT HYDRAULIC SYSTEM UNDER MAINTENANCE HAS BEEN ISOLATED

1. Equipment and Material

	ITEM	DESIGNATION
	A.	Hand Pump
	B.	Wrench - 17 mm (0.6633 in.)
	C. D46034	Castellated Wrench
	D. 98A32201003000	Brace - Hold-Open, Nose Gear Door
	E. 98A32303001000	Extractor
	F.	Safety Barriers
	G.	Hydraulic Fluid Container
	H.	Warning Notice
	J.	Access Platform (2 m - 2.60 m) (6 ft. 7 in. - 8 ft. 7 in.)
	K.	Blanking Plugs
	L. Material No. 04-004	Common Greases (Ref. 20-31-00)
R	M. Material No. 04-022	Common Greases (Ref. 20-31-00)
R	N. Material No. 09-004	Sealants (Ref. 20-31-00)
R	P. Material No. 11-002	Cleaning Agents (Ref. 20-31-00)
	Referenced Procedures	
	- 12-12-29, P. Block 1	Hydraulic Reservoir Replenishing
	- 12-22-32, P. Block 1	Lubrication - Landing Gear
	- 32-12-11, P. Block 301	Main Gear Main Door-(Ground Door(s) Opening)
	- 32-22-11, P. Block 301	Nose Gear Main Door-(Ground Door(s) Opening)
	- 29-10-00, P. Block 301	Main Hydraulic Power - pressurization/ Depressurization
	- 29-14-00, P. Block 301	Reservoir-Pressurization/Depressurization
	- 32-31-00, P. Block 501	Normal Extension/Retraction
	- 32-22-11, P. Block 401	Nose Gear Main Door

2. Procedure

A. Job Set-Up
(1)On panel 4VU
- make certain that landing gear control lever is in **DOWN** position

and prohibit its operation by displaying a warning notice.
(2)Between the First Officer's and Third Occupant's seats
- make certain that landing gear Free Fall extension control handle is in Normal position.
(3)Position access platforms.
(4)Position safety barriers prohibiting access to gear door travel ranges.
WARNING : MAKE CERTAIN THAT THE DOOR TRAVEL RANGES ARE CLEAR.
(5)Open RH main gear door and nose gear doors (Ref. 32-12-11, P. Block 301 and Ref. 32-22-11, P. Block 301).
WARNING : WHEN DOORS ARE OPEN MAKE CERTAIN THAT SAFETY COLLARS ARE POSITIONED ON DOOR ACTUATING CYLINDERS.
(6)Depressurize Green hydraulic reservoir (Ref. 29-14-00, P. Block 301) and prohibit its pressurization by displaying a warning notice
- on panel 429VU to prohibit APU starting,
- on hydraulic reservoir pressurization connector.
(7)Depressurize Green hydraulic system (Ref. 29-10-00, P. Block 301) and prohibit its pressurization by displaying a warning notice :
- on Green system ground connectors
- on panel 427VU to prohibit operation of Green electric pumps (ELEC PUMPS pushbutton switch)

(Ref. Fig. 401)

**ON A/C 001-104,

Post SB 32-2074 For A/C 001-104,

(Ref. Fig. 402)

**ON A/C ALL

(Ref. Fig. 403)

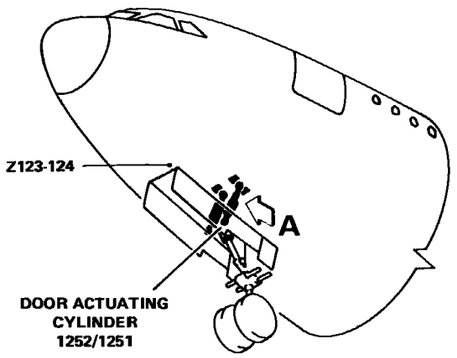
**ON A/C 001-104,

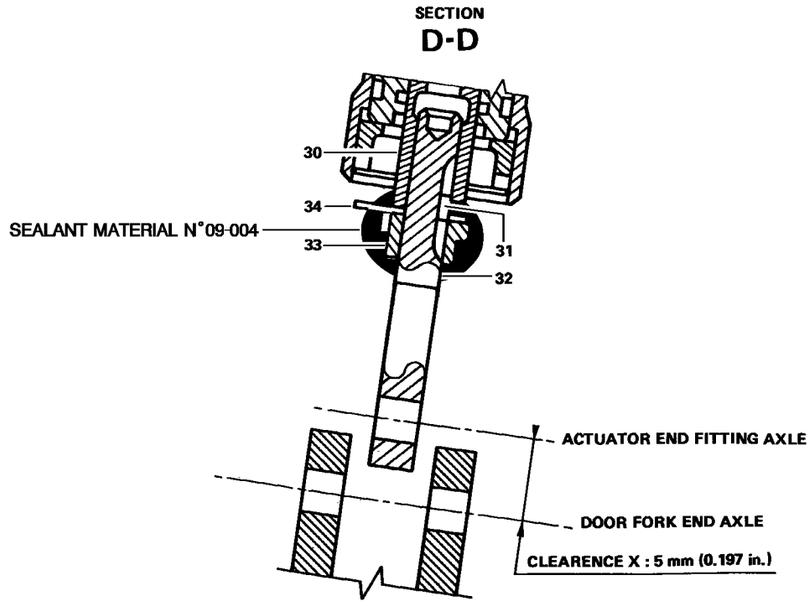
Post SB 32-2074 For A/C 001-104,

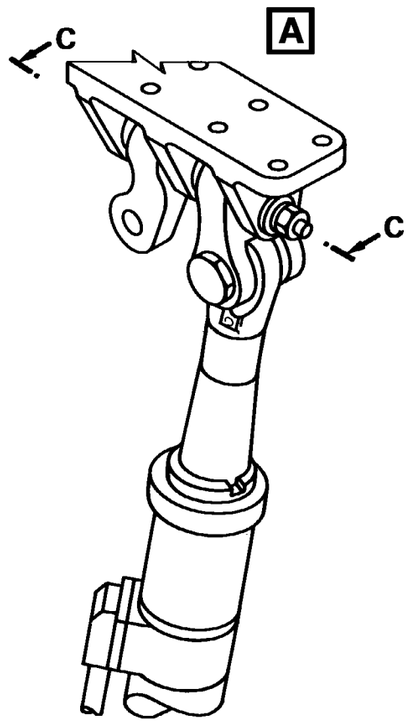
(Ref. Fig. 404)

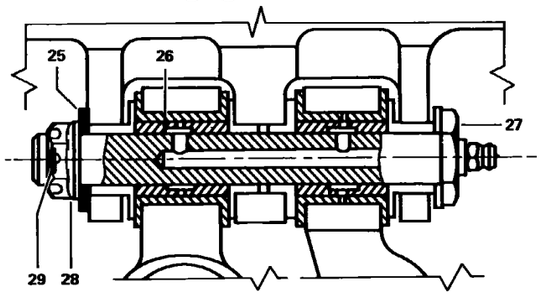
**ON A/C ALL

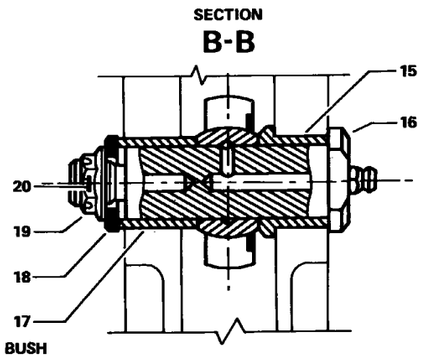
R B. Removal
(1)Mark, disconnect and blank hydraulic lines.
(2)Disconnect landing gear sequence valve control rod at its attachment on door fitting (Ref. 32-22-11, P. Block 401), taking care not to disturb its length.
CAUTION : MAINTAIN DOOR FULLY OPEN DURING ACTUATING CYLINDER REMOVAL.

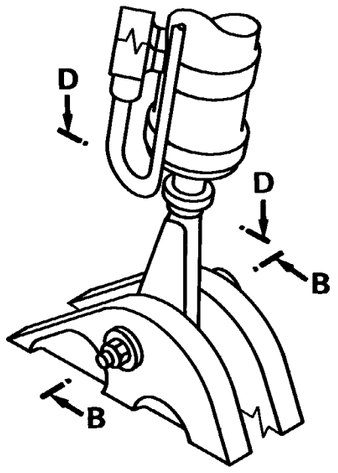












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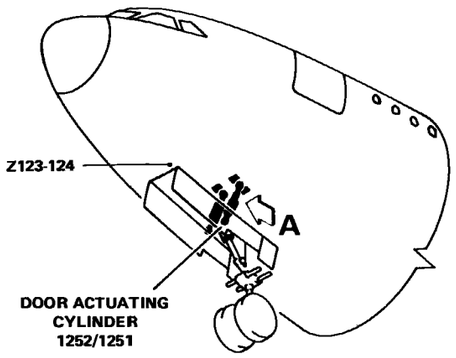
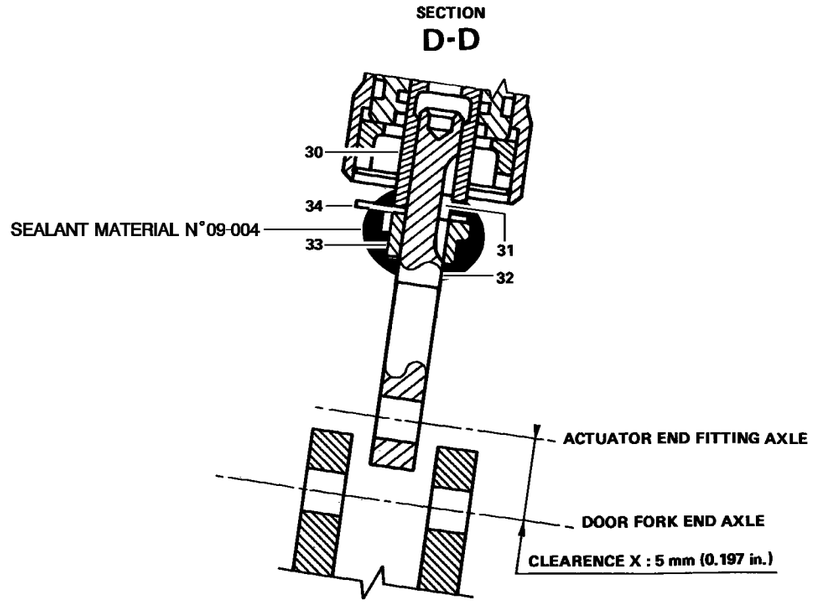
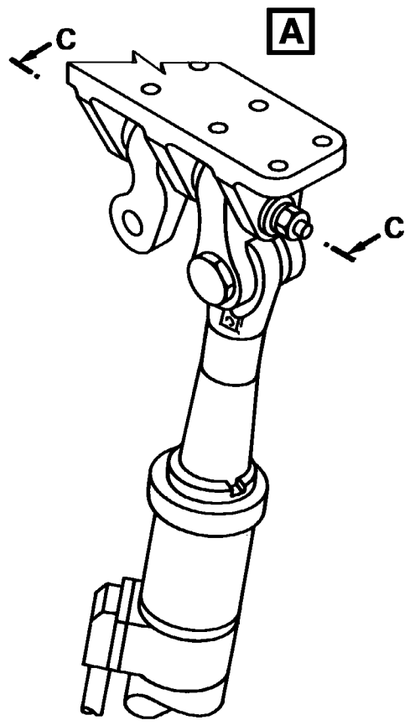
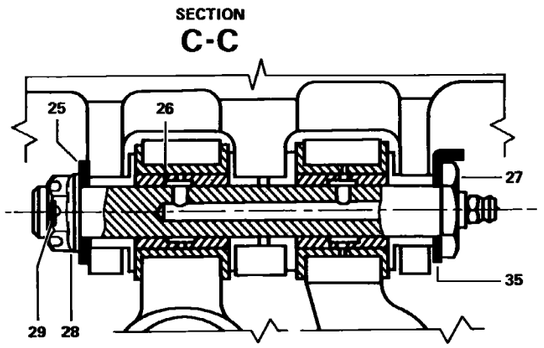
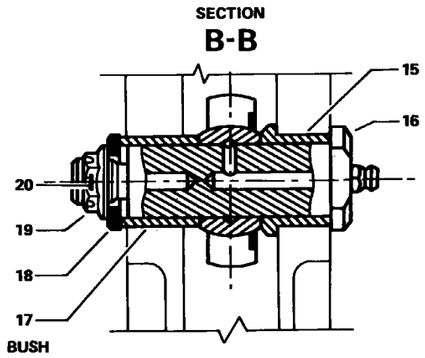
Nose Gear Door Actuating Cylinder P/N C2XXXX-XXX
Figure 401

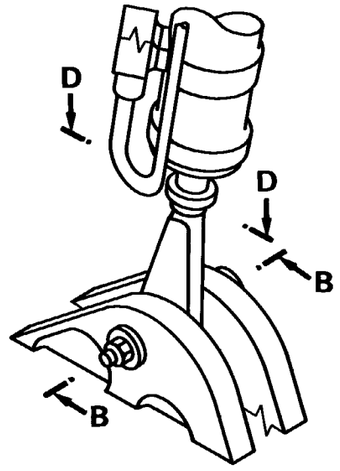












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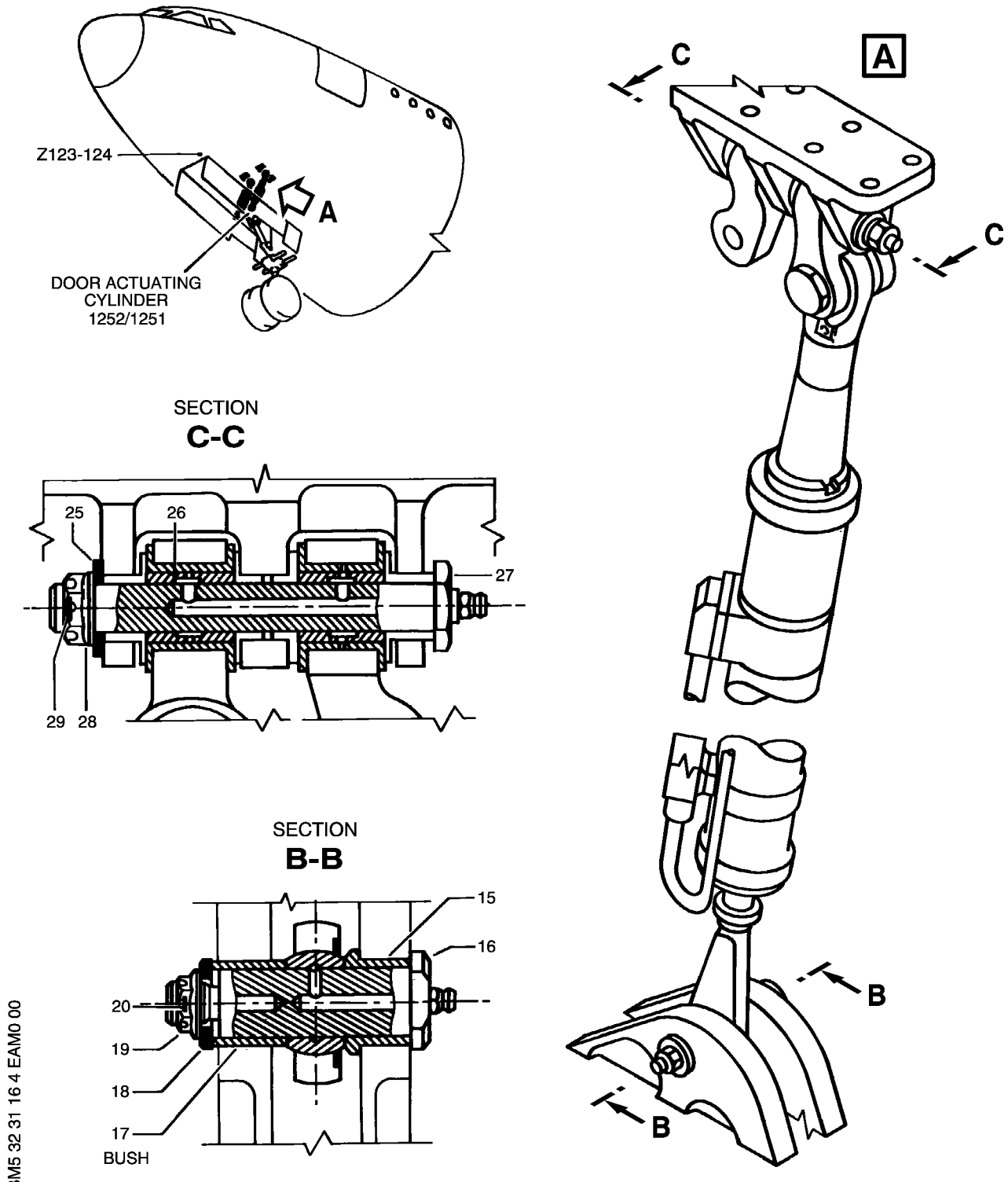
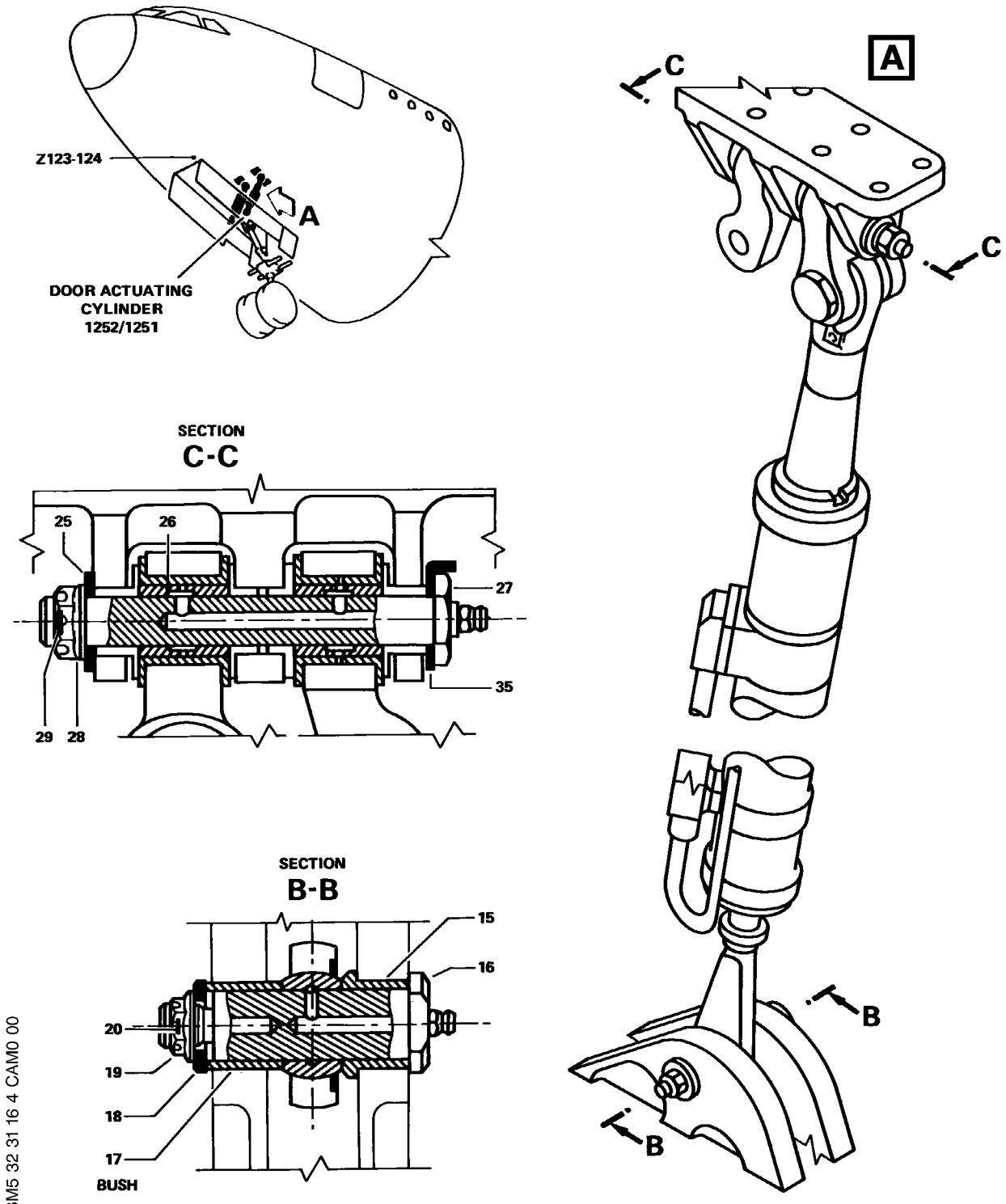
Nose Gear Door Actuating Cylinder P/N C2XXXX-XXX
Figure 402



Nose Gear Door Actuating Cylinder P/N S4-XXXXXXX
Figure 403



Nose Gear Door Actuating Cylinder P/N S4-XXXXXXX
Figure 404

(3)Disconnect actuating cylinder at its attachment on door fork fitting. Remove cotter pin (20) and remove nut (19), washer (18), and bolt (16). Retain bush (17) for reinstallation.
(4)Disconnect actuating cylinder at its attachment on structure. Remove cotter pin (29) and remove nut (28) and washer (25). Withdraw bolt (27) sufficiently with extractor 98A32303001000 to remove actuating cylinder. Retain spacer (26).
(5)Remove actuating cylinder.
(6)Hold door concerned open by means of brace 98A32201003000.

C. Preparation of Replacement Component

NOTE : The replacement nose gear door actuating cylinder is filled with aircraft system hydraulic fluid (Ref. 20-31-00)

(1)Depreserve the replacement actuating cylinder. Clean with Material No. 11-002 and dry with filtered compressed air.
(2)Check the condition of components intended for the installation of the actuating cylinder.
Replace any damaged components.
(3)Smear the actuating cylinder sliding rod with aircraft system hydraulic fluid. Operate the sliding rod slowly to free seals which may be sticking.
Carefully wipe the actuating cylinder clean.
(4)If replacement component is supplied without hydraulic connectors etc..., recover the connectors installed on the removed component, clean and check them for correct condition and install on replacement component using new seals.

D. Installation with Actuating Cylinder P/N C2XXXX-XXX (Ref. Fig. 401)

(1)Remove brace from door.

CAUTION : MAINTAIN DOOR FULLY OPEN DURING ACTUATING CYLINDER INSTALLATION.

(2)Connect the actuating cylinder at its attachment on the structure.
(a)Install spacer (26) in the actuating cylinder end fitting bore.
(b)Install bolt (27), washer (25), nut (28). Tighten nut (28) and safety with cotter pin (29).

**ON A/C 001-104,

Post SB 32-2074 For A/C 001-104,

NOTE : Make certain that lockwasher (35) is installed on bolt (27). (Ref. Fig. 402)

**ON A/C ALL

(3)Connect hand pump lines to actuating cylinder.
(4)Using hand pump, pressurize actuating cylinder until rod is in fully retracted position. Keep the actuating cylinder pressurized.

CAUTION : DURING DOOR OPERATIONS MAKE CERTAIN THAT THE ACTUATING CYLINDER AND THE LANDING GEAR SEQUENCE VALVE CONTROL ROD DO

NOT COME INTO CONTACT WITH THE DOOR.

(5)Manually close door.

(6)Adjust length of the actuating cylinder end fitting and attach in door fork fitting using bolt (16).

(a)Remove the rubber sealant at the eye fitting to the rod junction line.

(b)Unlock and loosen nut (33).

(c)Remove key (31).

(d)Adjust length of eye end fitting (32) by screwing or unscrewing as required.

(e)Place slot in eye end fitting (32) opposite the nearest notch of rod (30).

(f)Install key (31) and engage tab of plate (34) into notch of rod (30).

(g)Screw nut (33) to maintain length of eye end fitting (32). Do not tighten at this stage.

(7)Depressurize actuating cylinder.

(8)Disconnect actuating cylinder at its attachment on the door and screw in end fitting (32) to obtain a clearance X of 5 mm (0.197 in.) between actuator end fitting axle and door fork end axle.

(a)Unscrew nut (33) so as to remove key (31).

(b)Screw eye end fitting (32) until required dimension is obtained.

(c)Place slot in eye end fitting (32) opposite the nearest notch of rod (30).

(d)Install key (31) and engage tab of plate (34) into notch of rod (30).

(e)Screw nut (33) tighten and TORQUE to between 2.4 and 3.6 m.daN (17.7 and 26.5 lbf.ft.) using castellated wrench D46034 and preventing eye end fitting (32) from rotating by means of a 17 mm (0.669 in.) wrench. Lock nut (33) by peening plate (34) in two of the nut slots.

NOTE : After tightening and safetying the actuating cylinder end fitting make certain that witness hole in end fitting is not visible.

(f)Apply thick rubber sealant Material No. 09-004 at the eye fitting to the rod junction line.

(9)Connect actuating cylinder at its attachment on the door. Bush (17) bolt (16), washer (18), nut (19).
Tighten nut (19) and safety with cotter pin (20). Make certain that bush (15) is in position.

(10)Connect landing gear sequence valve control rod (Ref. 32-22-11, P. Block 401).

(11)On door actuating cylinder, disconnect hand pump hydraulic lines.

(12)After removing blanking plugs, connect aircraft hydraulic lines to actuating cylinder according to markings made during removal.

E. Installation with Actuating Cylinder P/N S4-XXXXXXX (Ref. Fig. 404)

NOTE : The actuating cylinder don't need to be adjusted on aircraft.

(1)Remove brace from door.

CAUTION : MAINTAIN DOOR FULLY OPEN DURING ACTUATING CYLINDER INSTALLATION.

(2)Connect the actuating cylinder at its attachment on the structure.

(a)Install spacer (26) in the actuating cylinder end fitting bore.

(b)Install bolt (27), washer (25), nut (28). Tighten nut (28) and safety with cotter pin (29).

**ON A/C 001-104,

Post SB 32-2074 For A/C 001-104,

NOTE : Make certain that lockwasher (35) is installed on bolt (27). (Ref. Fig. 404)

**ON A/C ALL

(3)After removing blanking plugs, connect aircraft hydraulic lines to actuating cylinder according to markings made during removal.
(4)Manually extend the actuator sliding rod by pulling it.
(5)Connect actuating cylinder at its attachment on the door. Bush (17) bolt (16), washer (18), nut (19).
Tighten nut (19) and safety with cotter pin (20). Make certain that bush (15) is in position.
(6)Connect landing gear sequence valve control rod (Ref. 32-22-11, P. Block 401).

R F. Tests
On door corresponding to actuating cylinder which has been removed, carry out a door ground opening and closing test (Ref. 32-31-00, P. Block 501).
WARNING : THE OTHER NOSE GEAR DOOR REMAINING OPEN, MAKE CERTAIN THAT SAFETY COLLAR IS INSTALLED ON NOSE GEAR DOOR ACTUATING CYLINDER AND THAT DOOR GROUND OPENING CONTROL HANDLE IS LOCKED IN OPEN POSITION BY MEANS OF SAFETY PINS.
During door ground closing, make certain that sequence valve control lever moves in accordance with door travel. Carefully check actuating cylinder for leakage during initial pressurization and upon completion of test.

R G. Close-Up
(1)Grease the actuating cylinder pivot points with Material No. 04-004 or Material No. 04-022 (Ref. 12-22-32, P. Block 1).
(2)Remove hydraulic fluid container.
(3)Make certain that working area is clean and clear of tools and miscellaneous items of equipment.
(4)Pressurize hydraulic reservoirs (Ref. 29-14-00, P. Block 301).
WARNING : MAKE CERTAIN THAT DOOR TRAVEL RANGES ARE CLEAR
(5)Close landing gear doors (Ref. 32-12-11, P. Block 301 or 32-22-11, P. Block 301).
(6)Replenish hydraulic reservoirs if necessary (Ref. 12-12-29, P. Block 1).
(7)Remove warning notice.
(8)Close access doors, remove access platform and safety barriers.
(9)Remove all ground handling and maintenance equipment, standard and special tools, together with ground power and replenishing equipment, all access equipment and miscellaneous items.

NOSE GEAR SEQUENCE VALVE (1255-1262) - REMOVAL/INSTALLATION

WARNING : CHECK THAT THE LANDING GEAR GROUND SAFETIES INCLUDING WHEEL CHOCKS ARE IN POSITION.

BEFORE APPLYING OR RELIEVING HYDRAULIC SYSTEM PRESSURE, MAKE CERTAIN THAT THE TRAVEL RANGES OF THE CONTROL SURFACES ARE CLEAR.

BEFORE PRESSURIZING HYDRAULIC SYSTEMS, CHECK THAT ALL CONTROLS ARE SET TO CORRESPOND WITH THE ACTUAL POSITION OF THE SERVICES THEY OPERATE.

BEFORE POWER IS SUPPLIED TO THE AIRCRAFT, MAKE CERTAIN THAT ELECTRICAL CIRCUITS UPON WHICH WORK IS IN PROGRESS ARE ISOLATED.

R **BEFORE PRESSURIZING HYDRAULIC SYSTEMS, MAKE CERTAIN THAT HYDRAULIC SYSTEMS UNDER MAINTENANCE HAVE BEEN ISOLATED.**

1. Equipment and Materials

ITEM	DESIGNATION
A. 98A32301012000	Pin - Rigging, Nose Gear Door Sequence Valve Control
B.	Safety Barriers
C.	Hydraulic Fluid Container
D.	Warning Notices
E.	Access Platforms (2 m - 2.60 m) (6 ft. 7 in. - 8 ft. 7 in.)
F.	Circuit Breaker Safety Clips
G.	Blanking Plugs
H. Material No. 04-004	Common Greases (Ref. 20-31-00)
J. Material No. 04-022	Common Greases (Ref. 20-31-00)
K. Material No. 11-002	Cleaning Agents (Ref. 20-31-00)
Referenced Procedures	
- 12-12-29, P. Block 1	Hydraulics
- 29-10-00, P. Block 301	Main Hydraulic Power - Pressurization/ Depressurization
- 29-14-00, P. Block 301	Hydraulic Reservoir Pressurizing System
- 32-12-11, P. Block 301	Main Gear Main Door - (Ground Door(s) Opening)
- 32-22-11, P. Block 301	Nose Gear Main Door - (Ground Door(s) Opening)
- 32-31-00, P. Block 501	Normal Extension and Retraction

2. Procedure

A. Job Set-Up
(1)On panel 4VU
- make certain that landing gear control lever is in **DOWN** position and prohibit its operation by displaying a warning notice.

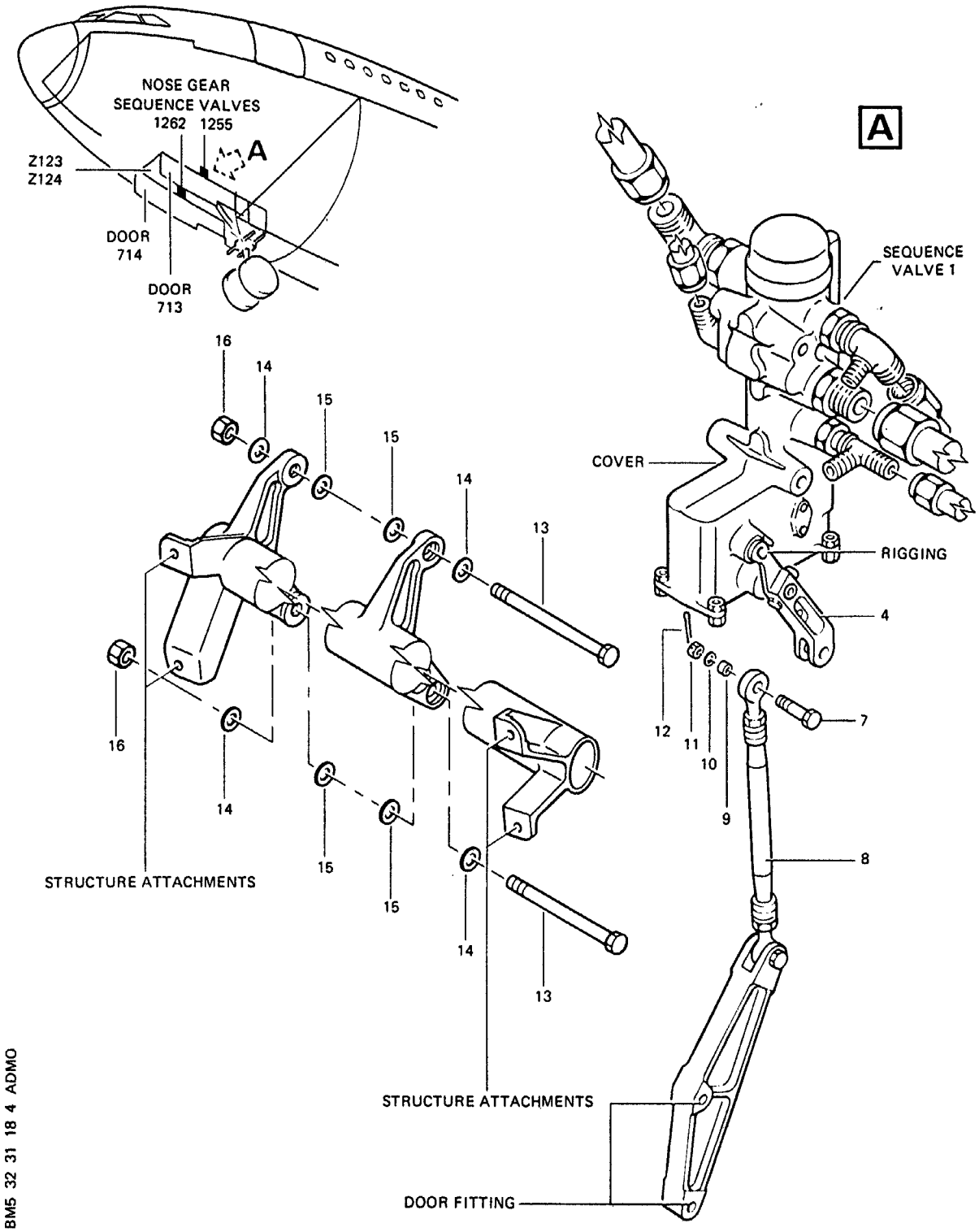
(2)Between First Officer's and Third Occupant's seats
- make certain that landing gear Free Fall extension control handle is in Normal position.

(3)Position access platforms.
(4)Position safety barriers prohibiting access to gear door travel ranges.
WARNING : MAKE CERTAIN THAT THE DOOR TRAVEL RANGES ARE CLEAR.
(5)Open right main gear door and nose gear doors (Ref. 32-12-11, P. Block 301 and 32-22-11, P. Block 301).
WARNING : WHEN DOORS ARE OPEN MAKE CERTAIN THAT SAFETY COLLARS ARE POSITIONED ON DOOR ACTUATING CYLINDERS.
(6)Depressurize Green hydraulic reservoir (Ref. 29-14-00, P. Block 301) and prohibit its pressurization by displaying a warning notice :
- on panel 429VU to prohibit APU starting
- on hydraulic reservoir pressurization connector.
(7)Depressurize Green hydraulic system (Ref. 29-10-00, P. Block 301) and prohibit its pressurization by displaying a warning notice :
- on Green system ground connectors
- on panel 427VU to prohibit operation of Green electric pumps (ELEC PUMPS pushbutton switch).
(8)Position hydraulic fluid container.

B. Removal
(Ref. Fig. 401)
(1)Mark disconnect and blank hydraulic lines.
(2)Disconnect rod (8) from sequence valve control lever (4).
(a)Remove cotter pin and nut (11), remove washer (10), and bolt (7). Retain bush (9) for reinstallation.
(3)Remove nuts (16), washers (14), bolts (13) and other washers (14). Remove sequence valve (1) mark and retain spacers (15) for installation.

C. Preparation of Replacement Component
NOTE : The replacement sequence valve is filled with aircraft system hydraulic fluid (Ref. 20-31-00).
(1)Depreserve sequence valve.
(2)Clean the sequence valve using material No.11-002 and dry with filtered compressed air.
(3)Make certain that components to be installed are in correct condition (damaged components shall be replaced).
NOTE : Cover attach screws are installed in reversed position (screw head under cover).

D. Installation
(1)Install sequence valve (1) with bolts (13), washers (14), and spacers (15) according to identification made during removal.
Install other washers (14) and nuts (16).
(2)Rig control lever (4) on the sequence valve using rigging pin 98A32301012000.
(3)Open door to actuating cylinder rod fully extended position and maintain in this position.
R (4)Coat bolt (7) and bush (9) with Material No. 04-004 or
R Material No. 04-022. Connect rod (8) to control lever (4), with bolt (7),
R bush (9), washer (10), nut (11).
R NOTE : Do not mix Material No. 04-004 with Material No. 04-022.
R You can use Material No. 04-022 as an alternative to



Nose Gear Sequence Valve
Figure 401

R Material No. 04-004. Clean and degrease the parts before you use
R Material No. 04-022.
- Make certain that bush (9) is correctly positioned.
- Adjust rod (8) length if required, tighten nut (11) safety with cotter pin (12).

(5)Make certain that there is no tension on rigging pin and remove.

E. Tests

(1)Carry out a Nose gear test Main gear on ground (Ref. 32-31-00, P. Block 501). During this test, check for hydraulic fluid leakage at sequence valve.

F. Close-Up

(1)Remove hydraulic fluid container.
(2)Make certain that working area is clean and clear of tools and miscellaneous items of equipment.
(3)Pressurize hydraulic reservoirs (Ref. 29-14-00, P. Block 301).
WARNING : MAKE CERTAIN THAT DOOR TRAVEL RANGES ARE CLEAR.
(4)Close landing gear doors (Ref. 32-12-11, P. Block 301 or 32-22-11, P. Block 301).
(5)Replenish hydraulic reservoirs as necessary (Ref. 12-12-29, P. Block 1).
(6)Remove warning notices.
(7)Close access doors, remove access platform and safety barriers.
(8)Remove all ground handling and maintenance equipment,standard and special tools, together with ground power and replenishing equipment, all access equipment and miscellaneous items.

NOSE GEAR SEQUENCE VALVE (1255-1262) - APPROVED REPAIRS

WARNING : CHECK THAT THE LANDING GEAR GROUND SAFETIES INCLUDING WHEEL CHOCKS ARE IN POSITION.

BEFORE APPLYING OR RELIEVING HYDRAULIC SYSTEM PRESSURE, MAKE CERTAIN THAT THE TRAVEL RANGES OF THE CONTROL SURFACES ARE CLEAR.

BEFORE PRESSURIZING HYDRAULIC SYSTEMS, CHECK THAT ALL CONTROLS ARE SET TO CORRESPOND WITH THE ACTUAL POSITION OF THE SERVICES THEY OPERATE.

BEFORE POWER IS SUPPLIED TO THE AIRCRAFT, MAKE CERTAIN THAT ELECTRICAL CIRCUITS UPON WHICH WORK IS IN PROGRESS ARE ISOLATED.

BEFORE PRESSURIZING HYDRAULIC SYSTEMS, MAKE CERTAIN THAT HYDRAULIC SYSTEMS UNDER MAINTENANCE HAVE BEEN ISOLATED.

1. Reason for the Job

To modify nose gear sequence valve protective cap to prevent spurious failure indication.

2. Equipment and Materials

ITEM	DESIGNATION
A.	Safety Barriers
B.	Access Platforms 2 m - 2.60 m (6 ft. 7 in. - 8 ft. 7 in.)
C.	Warning Notices
Referenced Procedures	
- 29-10-00, P. Block 301	Main Hydraulic Power - Pressurization/ Depressurization
- 29-14-00, P. Block 301	Hydraulic Reservoir Pressurizing System
- 32-12-11, P. Block 301	Main Gear Main Door - (Ground Door(s) Opening)
- 32-22-11, P. Block 301	Nose Gear Main Door - (Ground Door(s) Opening)
- 32-31-00, P. Block 501	Normal Extension and Retraction

3. Procedure

A. Job Set-Up

(1)On panel 4VU
- make certain that landing gear control lever is in **DOWN** position and prohibit its operation by displaying a warning notice.

(2)Between First Officer's and Third Occupant's seats
- make certain that landing gear Free Fall extension control handle is in Normal position.

(3)Position access platforms.

(4)Position safety barriers prohibiting access to gear door travel ranges.

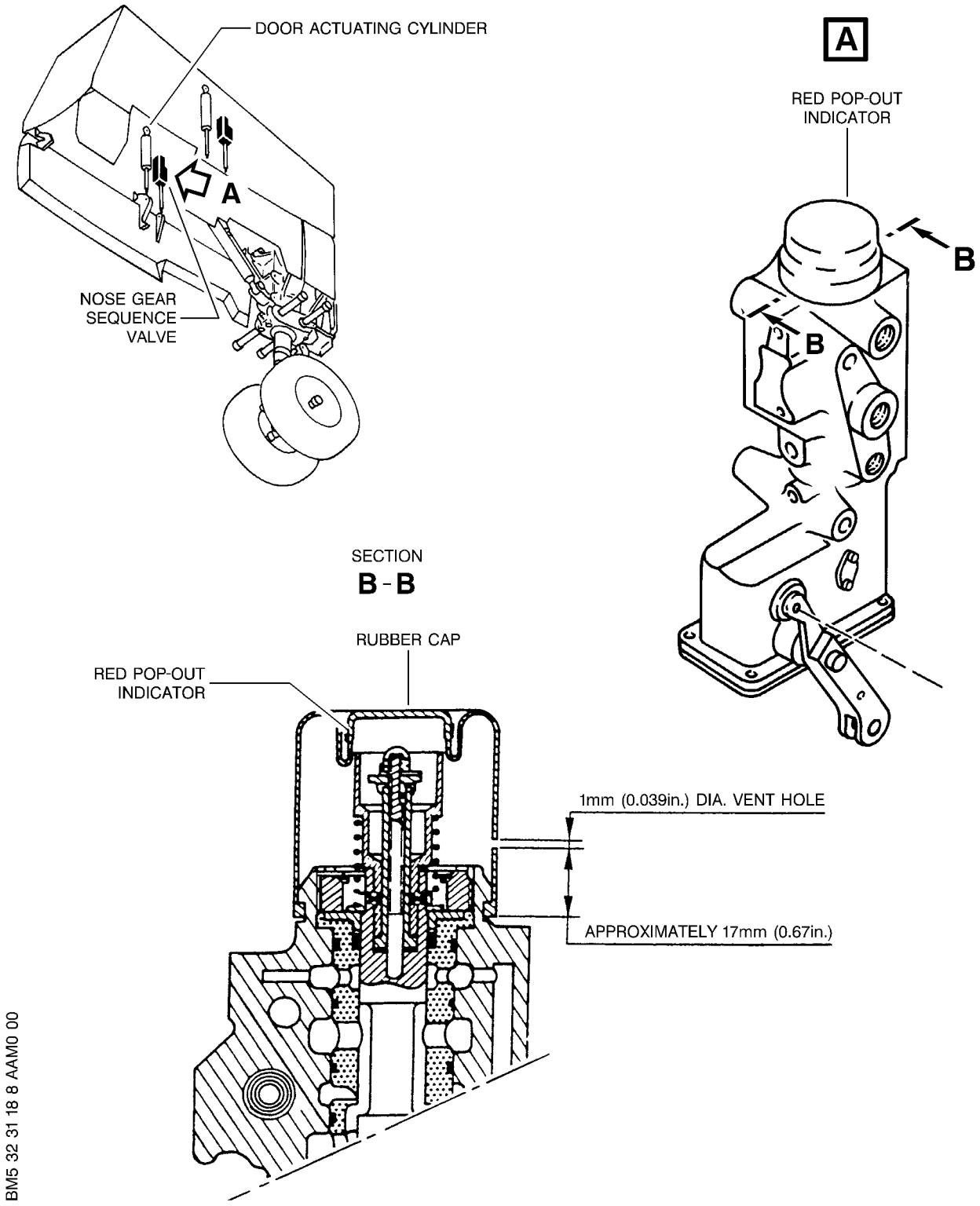
WARNING : MAKE CERTAIN THAT THE DOOR TRAVEL RANGES ARE CLEAR.

(5)Open right main gear door and nose gear doors (Ref. 32-12-11, P. Block 301 and 32-22-11, P. Block 301).
WARNING : WHEN DOORS ARE OPEN MAKE CERTAIN THAT SAFETY COLLARS ARE POSITIONED ON DOOR ACTUATING CYLINDERS.
(6)Depressurize Green hydraulic reservoir (Ref. 29-14-00, P. Block 301) and prohibit its pressurization by displaying a warning notice :
- on panel 429VU to prohibit APU starting
- on hydraulic reservoir pressurization connector.
(7)Depressurize Green hydraulic system (Ref. 29-10-00, P. Block 301) and prohibit its pressurization by displaying a warning notice :
- on Green system ground connectors
- on panel 427VU to prohibit operation of Green hydraulic pumps (ELEC PUMPS pushbutton switch).

B. Repair
(Ref. Fig. 801)
(1)Drill a 1 mm (0.039 in.) diameter vent hole in the front half part of the nose gear sequence valve protective cap.

C. Tests
(1)Carry out a Nose gear test Main gear on ground (Ref. 32-31-00, P. Block 501). During this test, check for hydraulic fluid leakage at sequence valve.

D. Close-Up
(1)Make certain that working area is clean and clear of tools and miscellaneous items of equipment.
(2)Pressurize hydraulic reservoirs (Ref. 29-14-00, P. Block 301).
WARNING : MAKE CERTAIN THAT DOOR TRAVEL RANGES ARE CLEAR.
(3)Close landing gear doors (Ref. 32-12-11, P. Block 301 or 32-22-11, P. Block 301).
(4)Remove warning notices.
(5)Close access doors, remove access platform and safety barriers.
(6)Remove all ground handling and maintenance equipment, standard and special tools, together with ground power and replenishing equipment, all access equipment and miscellaneous items.



Nose Gear Sequence Valve Approved Repair
Figure 801

WARNING : CHECK THAT THE LANDING GEAR GROUND SAFETIES INCLUDING WHEEL CHOCKS ARE IN POSITION. BEFORE APPLYING OR RELIEVING HYDRAULIC SYSTEM PRESSURE, MAKE CERTAIN THAT THE TRAVEL RANGES OF THE CONTROL SURFACES ARE CLEAR. BEFORE PRESSURIZING HYDRAULIC SYSTEMS, CHECK THAT ALL CONTROLS ARE SET TO CORRESPOND WITH THE ACTUAL POSITION OF THE SERVICES THEY OPERATE. BEFORE POWER IS SUPPLIED TO THE AIRCRAFT MAKE CERTAIN THAT ELECTRICAL CIRCUITS UPON WHICH WORK IS IN PROGRESS ARE ISOLATED. BEFORE PRESSURIZING HYDRAULIC SYSTEMS MAKE CERTAIN THAT HYDRAULIC SYSTEM UNDER MAINTENANCE HAS BEEN ISOLATED.

1. Uplock Assembly

A. Equipment and Materials

ITEM	DESIGNATION
(1)98A32301003000	Pin - Rigging, Landing Gear Emergency Lowering Control
(2)98A32301004000	Pin - Rigging, Nose Gear Emergency Lowering Control
(3)98A32301011000	Pin - Rigging, Nose Gear Door Sequence Valve Control
(4)98A32301010000	Pin - Rigging, Nose Gear Door Sequence Valve Control
(5)	Access Platforms (2 m - 2.60 m)
(6)	(6 ft. 7 in. - 8 ft. 7 in.)
(7)	Hydraulic Fluid Container
(8)	Blanking Plugs
(9)	Circuit Breaker Safety Clips
10)	Warning Notice
R 11)Material No. 11-002	Cleaning Agents (Ref. 20-31-00)
Referenced Procedures	
- 12-12-29, P. Block 1	Hydraulics
- 12-22-32, P. Block 1	Landing Gear - Lubrication
- 24-41-00, P. Block 301	AC External Power Control
- 29-10-00, P. Block 301	Main Hydraulic Power - Pressurization/Depressurization
- 29-14-00, P. Block 301	Hydraulic Reservoir Pressurizing System
- 32-12-11, P. Block 301	Main Gear Main Door - (Ground Door(s) Opening)
- 32-22-11, P. Block 301	Nose Gear Main Door - (Ground Door(s) Opening)
- 32-31-00, P. Block 501	Normal Extension and Retraction
- 32-33-00, P. Block 501	Free Fall Extension

B. Procedure

(1)Job Set-up

(a)On panel 4VU

- make certain that landing gear Normal control lever is in DOWN position and prohibit its operation by displaying a warning notice.

(b)Between First Officer's and Third Occupant's seats

- make certain that Free Fall extension control handle is in Normal position.

(c)Open, safety and tag the following circuit breakers

PANEL	SERVICE	IDENT.	LOCATION
133VU	HYD-L/G PROX DET/RELAYS SYS1 GEAR/DN/ CTR PNL POS IND	3GB	332/U53
133VU	HYD-L/G PROX DET/RELAYS SYS2 GEAR ON/ OVHD PNL POS IND	83GB	331/V51

(d)Position access platforms.

(e)Position safety barriers prohibiting access to gear door travel ranges.
WARNING : MAKE CERTAIN THAT THE DOOR TRAVEL RANGES ARE CLEAR.

(f)Open RH main gear and nose gear doors (Ref. 32-12-11, P. Block 301 and 32-22-11, P. Block 301).

(g)Depressurize Green hydraulic reservoir (Ref. 29-14-00, P. Block 301) and prohibit its pressurization by displaying a warning notice :
- on panel 429VU to prohibit APU starting
- on reservoir pressurization connector

(h)Depressurize Green hydraulic system (Ref. 29-10-00, P. Block 301) and prohibit its pressurization by displaying a warning notice :
- on Green hydraulic system ground connector
- on panel 427VU to prohibit operation of Green electric pumps (ELEC PUMPS pushbutton switch).

(j)Position hydraulic fluid container

(2)Removal
(Ref. Fig. 401)

(a)Disconnect electrical connector and install protective cap.

(b)Mark and disconnect hydraulic lines and cap open line ends.

(c)Disconnect bonding jumper (6), remove nut (5), washer (7), bolt (8).

(d)Disconnect rod (16) from lever (11).
- remove cotter pin and nut (14), and bolt (17).

NOTE : Bush (13) remains in position in its bore.

(e)Disconnect rod (31) from lever (26).
- remove cotter pin and nut (28), washer (29), and bolt (30).

(f)Disconnect uplock assembly from aircraft structure :
1 Remove cotter pin; remove nut (2), washer (3), bolt (9) and washer (4).
2 Remove cotter pin, remove nut (20), washer (19) and bolt (18).

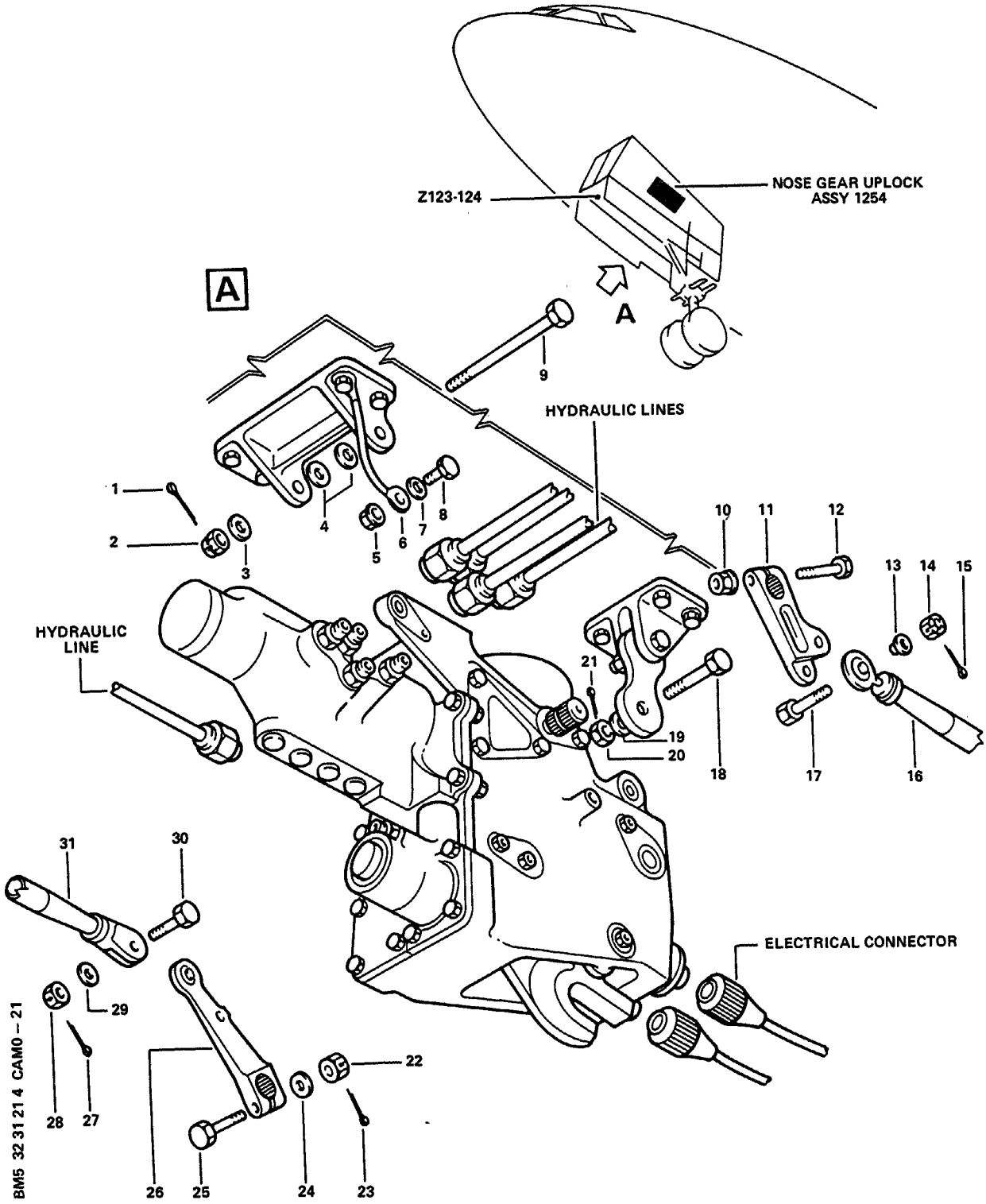
(g)Remove uplock assembly.

(3)Preparation of Replacement Component

NOTE : The replacement uplock assembly is filled with hydraulic fluid, Material No. 02-002 (Ref. 20-31-00).

(a)On removed component
1 Remove lever (11) from splined shaft
- remove nut (10), remove bolt (12) and crank (11).
2 Remove lever (26) from uplock assembly splined shaft.
- remove cotter pin, remove nut (22), washer (24), bolt (25) and crank (26).

(b)On replacement component



Nose Gear - Uplock Assy
Figure 401

- clean assembly and all removed parts using Material No. 11-002, then dry using filtered compressed air.
- depreserve replacement component.
- make certain that parts for installation are in correct condition (replace any damaged parts).
- install lever (11) on splined shaft, install bolt (12) and nut (10).
- install lever (26) on splined shaft, install bolt (25), washer (24), nut (22) and cotter pin (23).

NOTE : Installation of lever is foolproofed by one tooth being left blank on splined shaft.

(4)Installation

(a)Install uplock assembly with :

- bolt (9), adjust peel shims (4) in order to center and install the uplock assy on the bracket without tolerance
- install washer (3) and nuts (2)
- bolt (18), washer (19) and nut (20)
- safety nut (2) with cotter pin (1)
- safety nut (20) with cotter pin (21).

(b)Connect bonding jumper (6) bolt (8) washer (7) and nut (5).

(c)Connect hydraulic lines.

(d)Remove protective caps and connect electrical connectors.

(e)Install rigging pins 98A32301011000 and 98A32301004000 in uplock assembly levers (11) and (26).

(f)Install rigging pin 98A32301003000 in Emergency uplock release control at crank (40).
(Ref. Fig. 402)

(g)Install rigging pin 98A32301010000 in door sequence valve control crank (41).

(h)Connect rod (16) to lever (11) with bolt (17), bush (13), nut (14), cotter pin (15).
Make certain that bush (13) is correctly located. If necessary adjust length of rod (16).

(j)Connect rod (31) to lever (26) with bolt (30), washer (29), nut (28), cotter pin (27). If necessary adjust lenght of rod (31).

(k)Remove rigging pins from levers and cranks after making certain that no tension exists between rigging points.

(l)Lubricate nose gear uplock assembly (Ref. 12-22-32, P. Block 1).

(5)Tests

(a)Perform a Free Fall extension functional test (Ref. 32-33-00, P. Block 501).
During these tests, check component for evidence of external leakage both during initial pressurization and at close up of tests.

(b)Perform a Normal retraction and extension functional test (Ref. 32-31-00, P. Block 501).

(6)Close-Up

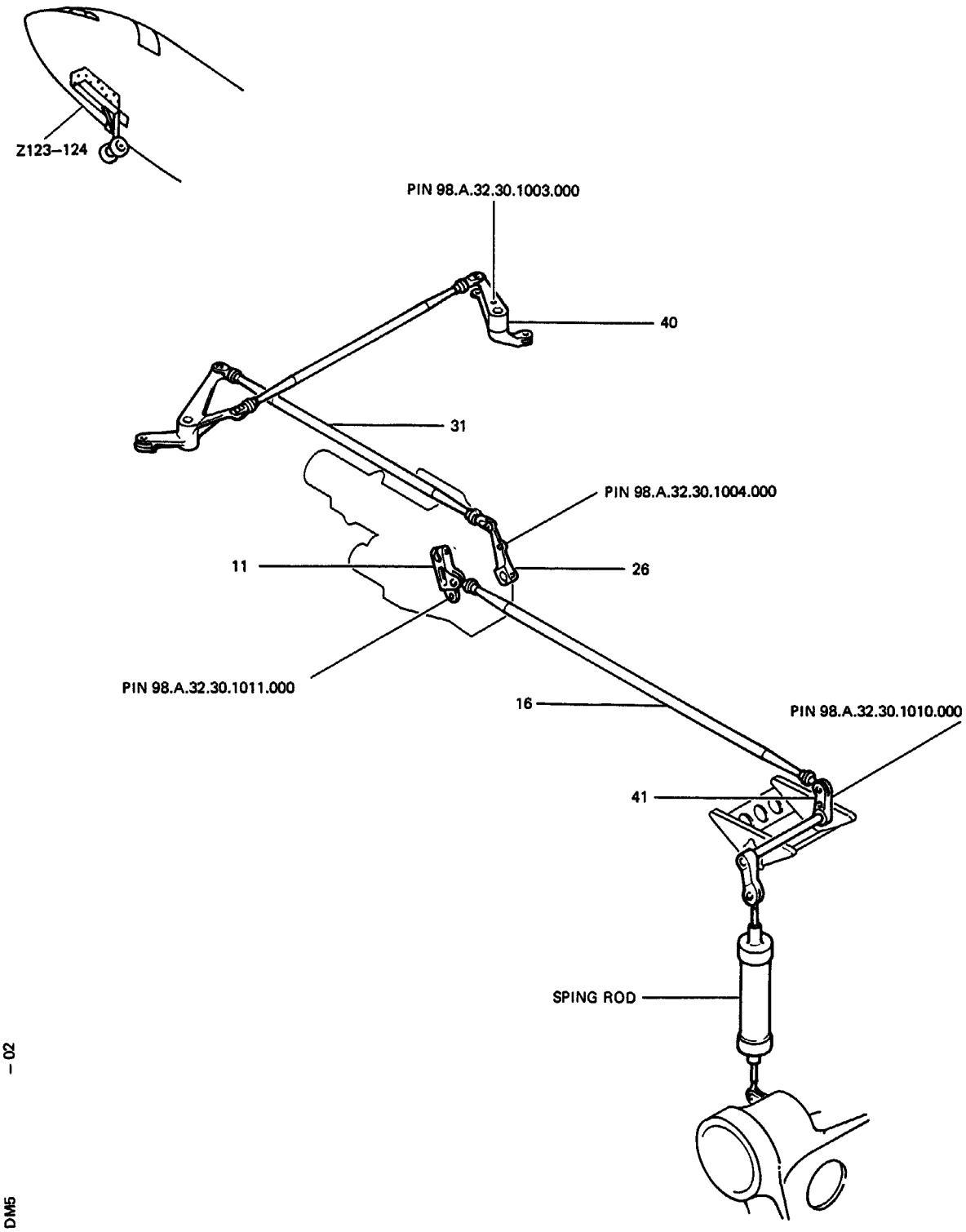
(a)Remove hydraulic fluid container.

(b)Make certain that working area is clean and clear of tools and miscellaneous items of equipment.

(c)Pressurize hydraulic reservoirs (Ref. 29-14-00, P. Block 301).

(d)Remove safety clips and tags and close circuit breakers 3GB and 83GB.

WARNING : MAKE CERTAIN THAT DOOR TRAVEL RANGE IS CLEAR.



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Nose Gear - Adjustment of Uplock Assy Controls
Figure 402

(e)Close landing gear doors (Ref. 32-12-11, P. Block 301 and 32-22-11, P. Block 301).
(f)Replenish hydraulic reservoirs as necessary (Ref. 12-12-29, P. Block 1).
(g)De-energize the aircraft electrical network (Ref. 24-41-00, P. Block 301).
(h)Remove warning notice.
(j)Close access doors, remove access platform and safety barriers.
(k)Remove all ground handling and maintenance equipment standard and special tools, together with ground power and replenishing equipment, all access equipment and miscellaneous items.

2. Uplock Assembly Components

A. Reason for the Job

(1)Removal/installation of hydraulic sequence valve and Normal uplock release actuating cylinder.

B. Equipment and Materials

ITEM	DESIGNATION
(2)	Access Platforms 2 m - 2.60 m (6 ft. 7 in. - 8 ft. 7 in.)
(3)	Rigging Pin Dia. 8 mm (0.314 in.)
(4)	Shim, Thickness 9 mm (0.354 in.)
(5)Material No. 09-001	Sealants (Ref. 20-31-00)
(6)	Hydraulic Fluid Container
(7)	Blanking Plugs
(8)Material No. 05-027	Special Materials (Ref. 20-31-00)
(9)Material No. 11-002	Cleaning Agents (Ref. 20-31-00)
10)Material No. 08-033	Bonding and Adhesive Compounds (Ref. 20-31-00)
Referenced Procedures	
- 07-11-00, P. Block 1	Jacking for Aircraft Maintenance Operations
- 12-12-29, P. Block 1	Hydraulics
- 29-10-00, P. Block 301	Main Hydraulic Power - Pressurization/Depressurization
- 29-14-00, P. Block 301	Hydraulic Reservoir Pressurizing System
- 32-12-11, P. Block 301	Main Gear Main Door - (Ground Door (s) Opening)
- 32-22-11, P. Block 301	Nose Gear Main Door - (Ground Door (s) Opening)
- 32-31-00, P. Block 501	Normal Extension and Retraction

C. Procedure

(1)Job Set-Up

(a)On panel 4VU

- Make certain that landing gear control lever is in **DOWN** position and prohibit its operation by displaying a warning notice

(b)Between First Officer's and Third Occupant's seats

- Make certain that Free Fall extension control handle is in Normal position.

(c)Position access platforms.

(d)Position safety barriers prohibiting access to gear door travel ranges.

WARNING : MAKE CERTAIN THAT THE DOOR TRAVEL RANGES ARE CLEAR.

(e)Open nose gear doors (Ref. 32-22-11, P. Block 301)

(f)Depressurize Green hydraulic system (Ref. 29-10-00, P. Block 301) and prohibit pressurization by displaying a warning notice :

- on Green hydraulic system ground connectors
- on panel 427VU to prohibit operation of Green electric pumps (ELEC PUMPS pushbutton switch).

(g)Depressurize Green hydraulic reservoir (Ref. 29-14-00, P. Block 301) and prohibit its pressurization by displaying a warning notice :

- on panel 429VU to prohibit APU starting
- on reservoir pressurization connector.

(h)Jack up the aircraft until wheels clear gound (Ref. 07-11-00)
(j)Position hydraulic fluid container

(2)Removal
(Ref. Fig. 403)
NOTE : - Using a spatula remove rubber coating taking care not to damage surface protective finish.
- Remove unions from components to be replaced

(a)Remove hydraulic sequence valve and Normal uplock release actuating cylinder

1 Mark and disconnect hydraulic lines and disengage or remove from clamps on aircraft structure to clear the immediate area. Blank open line ends and orifices.

2 Disengage rods from linkage (Free Fall Normal) at control levers. Control levers remain on splined shafts.
(Ref. Fig. 401)
- Disconnect rod (16) from lever (11)
- Remove cotter pin and nut (14) and bolt (17)
NOTE : Bush (13) remains in position in its bore
- Disconnect rod (31) from lever (26)
- Remove cotter pin and nut (28), washer (29), and bolt (30)

3 Remove screws (51), washers (52) and covers (53)

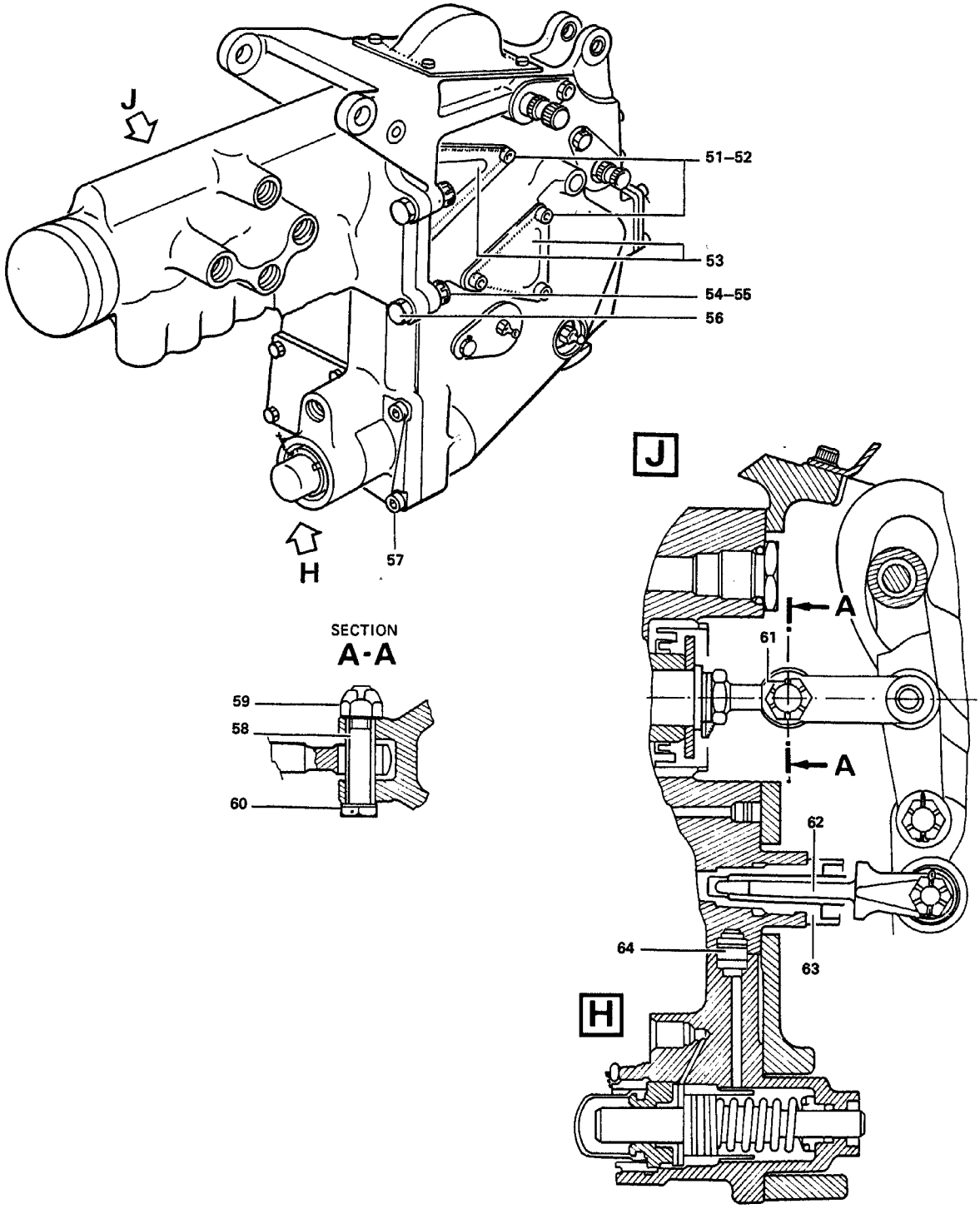
4 Manually lock uplock hook and remove nut (59), screw (60), bush (58) through inspection hole.

5 Remove hydraulic sequence valve and Normal uplock release actuating cylinder from uplock assembly.
CAUTION : THESE TWO COMPONENTS SHALL BE REMOVED SIMULTANEOUSLY (SPOOL 64).
- Cut lockwire and remove screws (57) from Normal actuating cylinder.
- Remove cotter pin and nuts (55), retain bolts (56) and remove Normal uplock release actuating cylinder and hydraulic sequence valve.
- Disconnect hydraulic sequence valve from Normal uplock release actuating cylinder and retain spool (64). Spool (64) is part of Normal actuating cylinder.
NOTE : In the event of faulty sequence valve note dimension X (Ref. paragraph 2 C (4) (a))

(3)Preparation of Replacement Component
- Depreserve replacement components, then clean with Material No. 11-002 and dry with filtered compressed air.
- Replace seals on removed spools (spools-unions).
- Install unions.

(4)Installation
(a)Adjust hydraulic sequence valve.
(Ref. Fig. 404)
CAUTION : ADJUSTMENT IS ONLY REQUIRED IF SEQUENCE VALVE IS REPLACED.

1 On faulty sequence valve
- Remove protective cap (75) bonded with Loctite using a spatula.
- Cut lockwire and remove from nut (76) and body (74).
- Clean body (74) with Material No. 11-002 and dry with filtered compressed air.
- Position sequence valve as shown in the figure
(Ref. Fig. 404)



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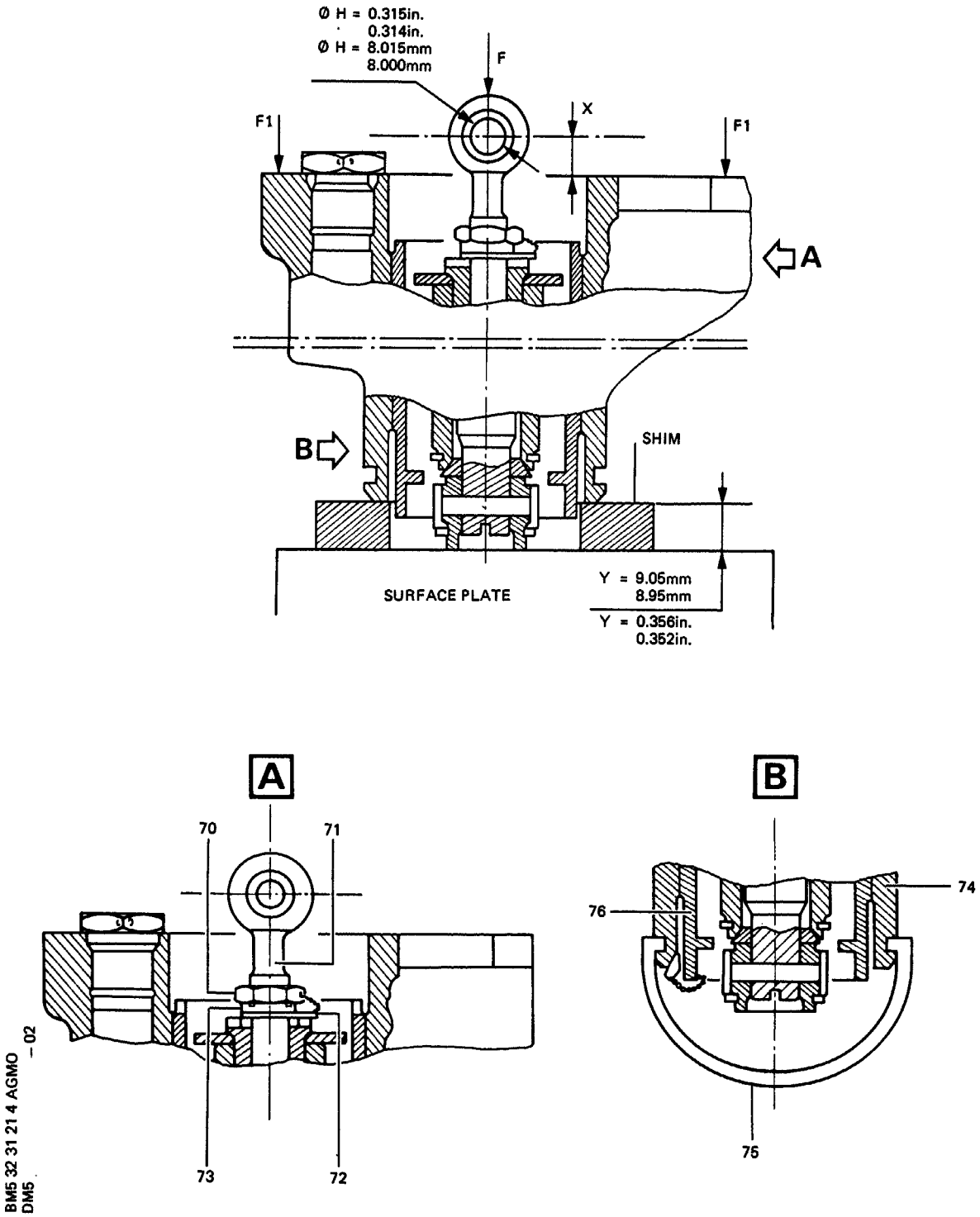
Uplock Assembly Components
Figure 403



Sequence Valve Adjustment
Figure 404

Make certain that :
- Body bears (74) on shim (load applied on arrow F1).
- End of slide valve bears on surface plate (load applied on arrow F)
- Install rigging pin in bore H and measure and record dimension X.

2 On new sequence valve
- Position new sequence valve on surface plate and shim as for faulty sequence valve and screw in or out rod (71) to obtain value x previously noted.
- Position lockwasher (72) tabs, install washer (73), prevent rotation of rod (71) and install nut (70) ; TORQUE nut (70) to between 0.55 and 0.7 m.daN (4.05 and 5.16 lbf. ft.)
- Check dimension X. If necessary, repeat adjustment procedure above.
- Safety nut (70) and lockwasher (72) together with lockwire.

(b)Install sequence valve and Normal uplock release actuating cylinder.

NOTE : If sequence valve replacement is required, make certain that adjustment is performed as described in paragraph 2 C (4) (a).

- The two components shall be installed simultaneously.
- Hook is in uplocked position.

1 Connect sequence valve to Normal uplock release actuating cylinder with spool (64).

2 Position sequence valve and actuating cylinder on uplock box.

CAUTION : ENGAGE ROD (62) IN LOCKING PISTON BY GUIDING ROD THROUGH INSPECTION HOLE.

3 Install sequence valve on uplock box with bolts (56) and nuts (55). TORQUE nuts (55) to between 0.18 and 0.21 m.daN (13.27 and 15.48 lbf. ft.)

4 Install Normal uplock release actuating cylinder with secrews (57). TORQUE screws (57) to between 0.65 and 0.8 m.daN (4.79 and 5.90 lbf. ft).

5 Connect sequence valve rod to uplock box linkage.
Align bores and install bush (58), bolt (60) and nut (59). TORQUE nut (59) to between 0.75 and 0.9 m.daN (5.53 and 6.63 lbf. ft) and safety with cotter pin (61).

6 Release uplock hook by actuating Free Fall lever and install linkage rods (Free Fall - Normal) out control levers.
(Ref. Fig. 401)
- Connect rod (31) to bellcrank (26) with bolt (30), washer (29), nut (28) and cotter pin (27)
- Connect rod (16) to bellcrank (11) with bolt (17), bush (13), nut (14), cotter pin (15).

Make certain that bush (13) is correctly located.

7 Check that dimension Y is between 8.95 and 9.05 mm (0.352 and 0.356 in.). If dimension Y is out of tolerance perform sequence valve removal procedure as per paragraph 2 C (2) (a).
- Configure sequence valve as per paragraph 2 C (4) (a).
(Ref. Fig. 404)
  - Note dimension X, then screw in or out rod by a value equal to the difference between the dimension measured on the aircraft and dimension Y (one turn of rod equals 1.25 mm (0.049 in.)).
  - Position lockwasher (72) tabs in slide valve slots, install washer

(73), prevent rotation of rod (71) and install nut (70) ; TORQUE nut (70) to between 0.55 and 0.7 m.daN (4.05 and 5.16 lbf. ft).
- Safety nut (70) to lockwasher (72) with lockwire.
- Install sequence valve and uplock release actuating cylinder (Ref. paragraph 2 C (4) (b).

8 Connect hydraulic lines as per marking made during removal. Secure hydraulic lines freed during removal with clamps on aircraft structure.

9 Remove hydraulic fluid container.

10 Make certain that working area is clean and clear of tools and miscellaneous items of equipment.

WARNING : MAKE CERTAIN THAT THE DOOR TRAVEL RANGES ARE CLEAR.

11 Close landing gear doors (Ref. 32-12-11, P. Block 301 and 32-22-11, P. Block 301).

(5)Tests

NOTE : During following tests carefully check uplock assembly for external leakage during initial pressurization and upon completion of tests.

(a)Following removal/installation of sequence valve and Normal actuating cylinder carry out a landing gear Normal extension and retraction functional test (Ref. 32-31-00, P. Block 501).

(6)Close-up

WARNING : MAKE CERTAIN THAT DOOR TRAVEL RANGES ARE CLEAR. MAKE CERTAIN THAT GROUND SAFETY PINS ARE INSTALLED ON LANDING GEARS.

(a)Open nose landing gear main doors (Ref. 32-22-11, P. Block 301).

(b)Depressurize Green hydraulic system (Ref. 29-10-00, P. Block 301) and prohibit its pressurization by displaying a warning notice :
- on Green hydraulic system ground connectors
- on panel 427VU to prohibit operation of Green electric pumps (ELEC PUMPS pushbutton switch).

(c)Depressurize Green hydraulic reservoir (Ref. 29-14-00, P. Block 301) and prohibit its pressurization by displaying a warning notice :
- on panel 429VU to prohibit APU starting
- on reservoir pressurization connector.

(d)After tests following installation of sequence valve and Normal uplock release actuating cylinder :
- install covers (53), washers (52) and screws (51). TORQUE screws (51) to between 0.15 and 0.16 m.daN (1.10 and 1.18 lbf. ft) and safety with lockwire
- safety nut (76) to body (74) with lockwire (Ref. Fig. 404)
- install cap (75) as follows : (Ref. Fig. 404)
- on body (74) rub down surfaces to be bonded with abrasive cloth (three equidistant zones on outer face of flange - length 25 mm (0.984 in.) approx.)
- clean surfaces to be bonded with a cloth soaked in methylated spirit (body (74) and cap (75)).
- turn up edges of cap (75), apply a thin film of Material 08-033 on the three zones on body (74) then fold down edges of cap (75) within 15 seconds

- check torque setting of nuts (55) and safety with cotter pin (54)
- check torque setting of nuts (57) and safety with lockwire.

(e)Protect hardware, contact line of newly installed components and edges of covers where applicable with liquid rubber sealant Material No. 09-001.

(f)Protect
- protective covers
- caps
- hydraulic unions
- connectors

with adhesive tape and damp-proof newly installed components with Material No. 05-027 using a brush. Remove adhesive tape.

(g)Make certain that working area is clean and clear of tools and miscellaneous items of equipment.

WARNING : MAKE CERTAIN THAT AREA UNDER THE AIRCRAFT IS CLEAR.

(h)Lower the aircraft onto its wheels (Ref. 07-11-00, P. Block 1).

(j)Pressurize hydraulic reservoirs (Ref. 29-14-00, P. Block 301).

WARNING : MAKE CERTAIN THAT DOOR TRAVEL RANGES ARE CLEAR.

(k)Close landing gear doors (Ref. 32-12-11, P. Block 301 and 32-22-11, P. Block 301).

(l)If necessary, top up hydraulic reservoirs (Ref. 12-12-29, P. Block 1).

(m)De-energize the aircraft electrical network (Ref. 24-41-00, P. Block 301).

(n)Remove all ground handling and maintenance equipment, standard and special tools together with ground power and replenishing equipment, all access equipment and miscellaneous items.

WARNING : CHECK THAT THE LANDING GEAR GROUND SAFETIES INCLUDING WHEEL CHOCKS ARE IN POSITION.

BEFORE APPLYING OR RELIEVING HYDRAULIC SYSTEM PRESSURE, MAKE CERTAIN THAT THE TRAVEL RANGES OF THE CONTROL SURFACES ARE CLEAR.

BEFORE PRESSURIZING HYDRAULIC SYSTEMS, CHECK THAT ALL CONTROLS ARE SET TO CORRESPOND WITH THE ACTUAL POSITION OF THE SERVICES THEY OPERATE.

BEFORE POWER IS SUPPLIED TO THE AIRCRAFT, MAKE CERTAIN THAT ELECTRICAL CIRCUITS UPON WHICH WORK IS IN PROGRESS ARE ISOLATED.

BEFORE PRESSURIZING HYDRAULIC SYSTEMS, MAKE CERTAIN THAT HYDRAULIC SYSTEM UNDER MAINTENANCE HAS BEEN ISOLATED.

1. Equipment and Materials

	ITEM	DESIGNATION
	A.	Hand Pump
	B. 99A29001006000	Unit-Topping Up, Hydraulic Tank (Hand Operated)
	C. 97A29102035000	Connector-Pressurizing, Hydraulic Tank
	D. 97A29102062000	Connector-Depressurizing, Hydraulic Tank
	E. 98A32301015000	Extractor-Hinge Pin-Actuating Cylinder/ Aircraft Structure
	F.	Hydraulic Fluid Container
	G.	Access Platforms 2m - 2.6m (6 ft. 7 in. - 8 ft. 7 in.)
	H.	Blanking Plugs
	J.	Safety Barriers
	K.	Warning Notices
	L. Material No. 04-004	Common Greases (Ref. 20-31-00)
R	M. Material No. 04-022	Common Greases (Ref. 20-31-00)
R	N. Material No. 09-001	Sealants (Ref. 20-31-00)
R	P. Material No. 09-002	Sealants (Ref. 20-31-00)
R	Q. Material No. 11-002	Cleaning Agents (Ref. 20-31-00)
	Referenced Procedures	
	- 12-12-29, P. Block 1	Hydraulic Reservoir Replenishing
	- 12-22-32, P. Block 1	Lubrication - Landing Gear
	- 29-10-00, P. Block 301	Main Hydraulic Power-Pressurization/Depressurization
	- 29-14-00, P. Block 301	Reservoir - Pressurization/Depressurization
	- 32-12-11, P. Block 301	Main Gear Main Door - (Ground Door(s) Opening)
	- 32-22-11, P. Block 301	Nose Gear Main Door - (Ground Door(s) Opening)
	- 32-22-13, P. Block 401	Nose Gear Aft Door
	- 32-31-00, P. Block 501	Extension/Retraction

2. Procedure

A. Job Set-Up
(1)On panel 4VU
- make certain that landing gear control lever is in **DOWN** position and prohibit its operation by displaying a warning notice.

(2)Between First Officer's and Third Occupant's seats
- make certain that landing gear Free Fall extension control handle is in Normal position.

(3)Position access platforms
(4)Position safety barriers prohibiting access to gear door travel ranges.
WARNING : MAKE CERTAIN THAT THE DOOR TRAVEL RANGES ARE CLEAR.
(5)Open RH main gear door and nose gear doors (Ref. 32-12-11, P. Block 301 and 32-22-11, P. Block 301).
WARNING : WHEN DOORS ARE OPEN MAKE CERTAIN THAT SAFETY COLLARS ARE POSITIONED ON DOOR ACTUATING CYLINDERS.
(6)Depressurize Green hydraulic tank (Ref. 29-14-00, P. Block 301) and prohibit its pressurization by displaying a warning notice:
- on panel 429VU to prohibit APU starting
- on tank pressurization connector

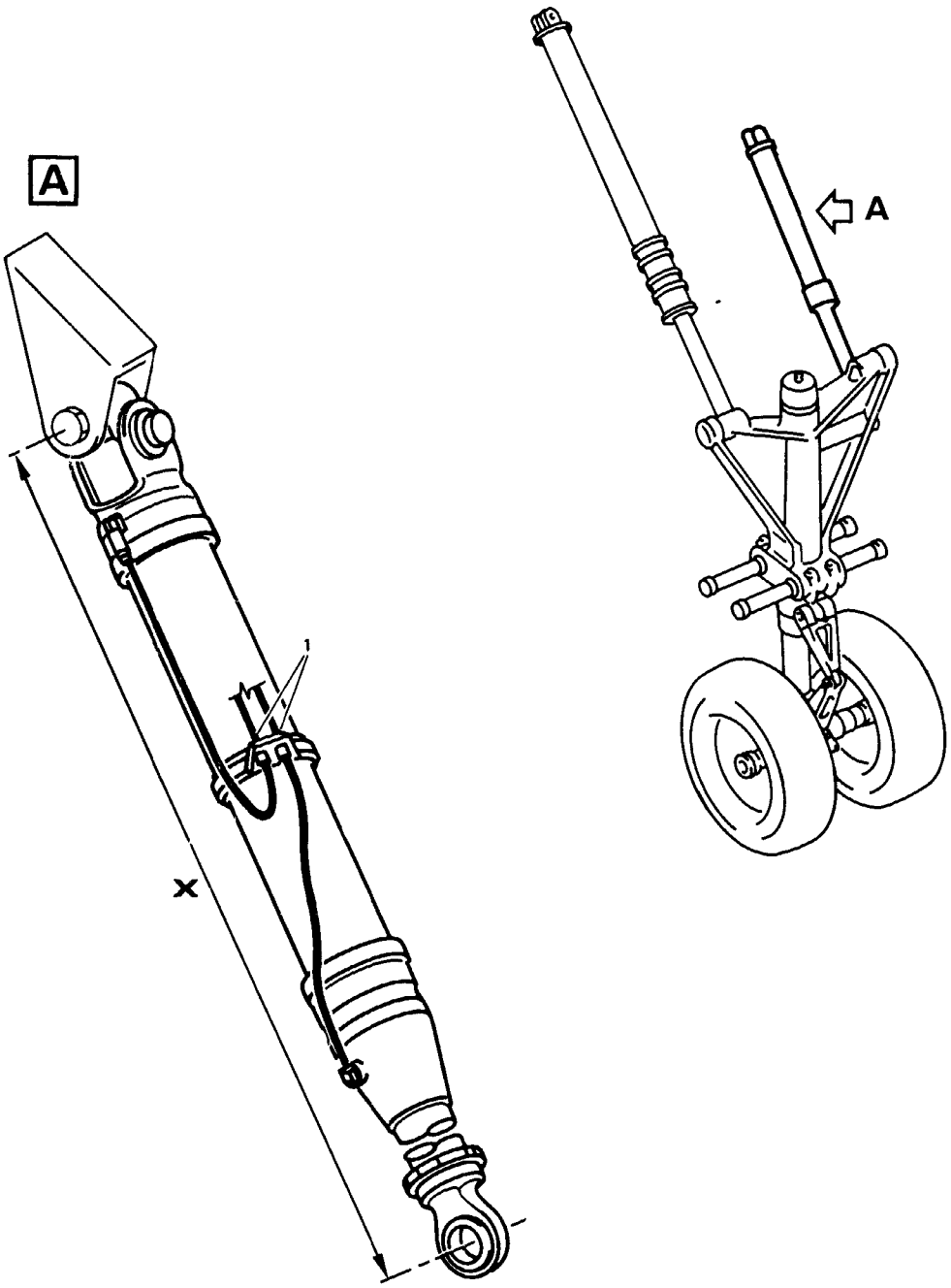
(7)Depressurize Green hydraulic system (Ref. 29-10-00, P. Block 301) and prohibit pressurization by displaying a warning notice :
- on Green hydraulic system ground connectors
- on panel 427VU to prohibit operation of Green electric pumps (**ELEC PUMPS** pushbutton switch).

B. Removal (Ref. Fig. 401, 402)
NOTE : Remove rubber coating on components to be removed by means of a spatula, taking care not to damage surface finish.
(1)Disconnect rotating control rod swivel end of RH aft door (Ref. 32-22-13, P. Block 401). Door remains on its hinges swinging free.
R (2)Disconnect bonding jumpers.
R (3)Mark and disconnect hydraulic lines (1) and blank off open ends.
R (4)Disconnect actuating cylinder from the aircraft structure.
(a)Remove hose guard (12).
1 Remove cotter pin (13), nut (14) and bolt (15).
2 Remove bolts (16), washers (17).
3 Remove nut (27).
4 Remove hose guard (12).
(b)Remove cotter pin (8), nut (9), washer (7), and bolt (4) together with washer (2).
(c)Loosen nut (5) so that lug (6) can turn freely.
(d)Remove end plate (10) and plug (3).
(e)Remove hollow shaft (11).
R (5)Disconnect actuating cylinder from gear.
(a)Remove cotter pin (26), nut (24), washer (23), and bolt (25).
NOTE : Note position of grease nipple (28), in order to reinstall it in the same position.
(b)Remove stop (22) and collar (21).
NOTE : Handle collars with care so that they may be reinstalled if necessary.

(c)Remove actuating cylinder spherical end fitting together with collar (21).
(d)Remove actuating cylinder.

C. Preparation of Replacement Component
(1)Depreserve the replacement actuating cylinder by removing exterior protective coverings.
Clean with material No.11-002 then dry with filtered compressed air.
(2)Smear actuating cylinder sliding rod with aircraft system hydraulic fluid.
Slowly move sliding rod back and forth to free any possible sticking of packing seals. Carefully wipe actuating cylinder.
(3)Clean all removed parts with material No.11-002 and dry with filtered compressed air.
(4)Check actuating cylinder installation parts for correct condition as follows :
(a)Evidence of oxidation, scaling, or scores on chromed surfaces of shafts.
(b)Torn seals.
Replace any damaged parts.
(5)Note center-to-center distance (X) of removed actuating cylinder.
(6)Move replacement actuating cylinder sliding rod until center-to-center distance (X) is reached using hand pump.

D. Installation (Ref. Fig. 401, 402)
R NOTE : Lightly grease all shafts with Material No. 04-004 or
R Material No. 04-022 to facilitate their installation.
R NOTE : Do not mix Material No. 04-004 with Material No. 04-022.
R You can use Material No. 04-022 as an alternative to
R Material No. 04-004. Clean and degrease the parts before you use
R Material No. 04-022.
(1)Offer up actuating cylinder for connection to gear.
(a)Install one collar (21) in its housing.
(b)Align bore of end-fitting spherical bearing with hinge pin on gear barrel integral yoke then slide spherical bearing onto pin.
(c)Install other collar (21) on spherical bearing and install stop (22).
(d)Install bolt (25), washer (23), nut (24).
NOTE : Make sure that grease nipple (28) is positioned above bolt (25) centerline and that nipple points downwards in order to avoid any mechanical interference between the grease nipple and the door, during the first gear retraction.
(e)TORQUE nut (24) to between 0.9 and 1.7 m.daN (6.64 and 12.54 lbf.ft) and safety with cotter pin (26).
(2)Offer up actuating cylinder for connection to aircraft structure.
(a)Align bores of actuating cylinder universal joint and the aircraft structural fork fitting then install hollow shaft (11).
(b)Carefully install insert (3).
(c)Install end plate (10) and TORQUE nut (5) to between 0.9 and 1.7 m.daN (6.64 and 12.54 lbf.ft).
(d)Install bolt (4) with its washer (2), washer (7), nut (9).
(e)TORQUE nut (9) to between 4.6 and 5.4 m.daN (33.94 and 39.83 lbf.ft)



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Nose Gear - Actuating Cylinder
Figure 401

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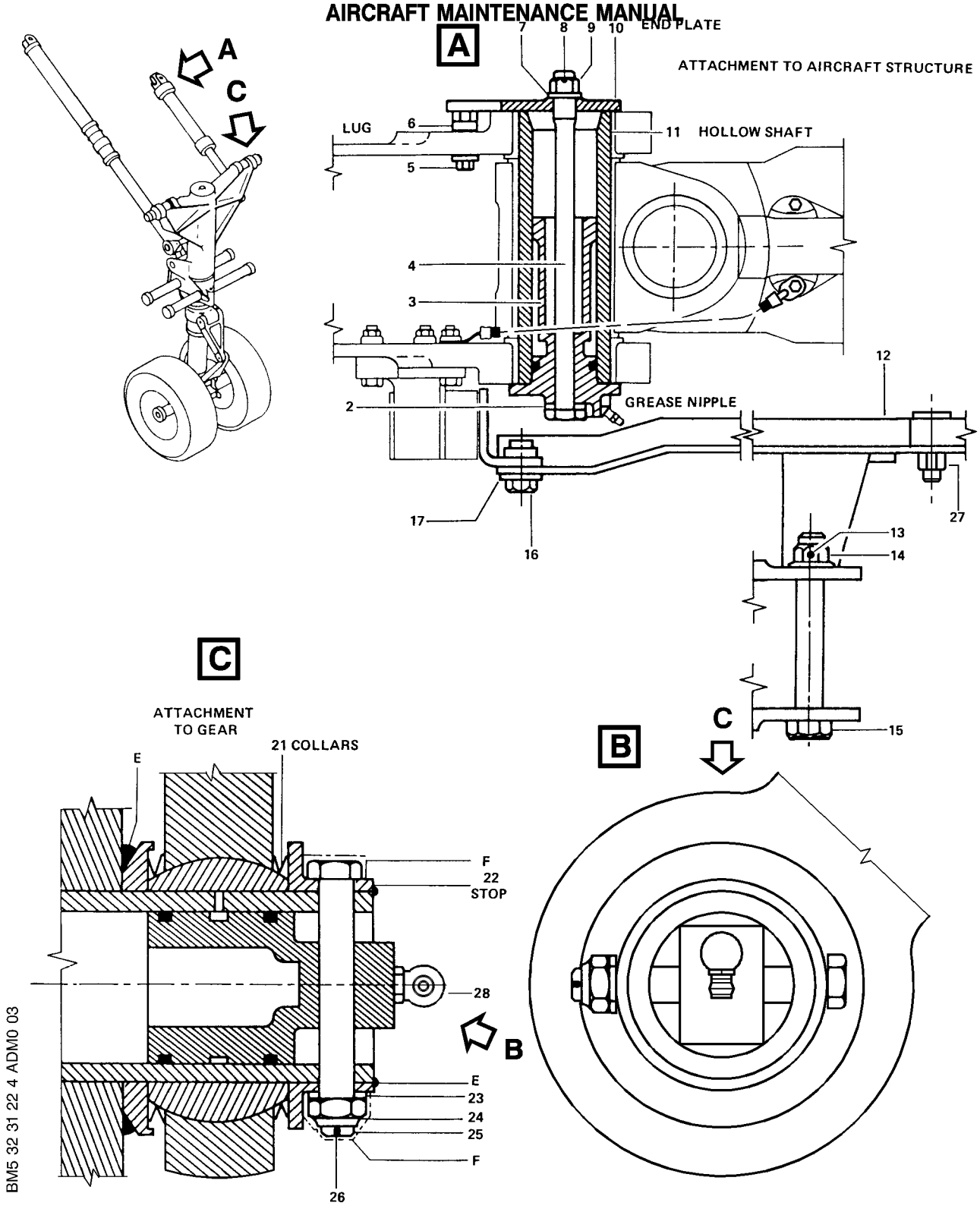


Nose Gear Actuating Cylinder - Hinge Shaft Assembly
Figure 402

R

and safety with cotter pin (8).
(f)Installation of hose guard (12)
1 Offer up hose guard (12).
2 Install nut (27).
3 Install bolts (16), washers (17).
4 Install bolts (15), nut (14) and cotter pin (13).
(3)Connect hydraulic lines in accordance with marking made during removal.
(4)Connect bonding jumpers.
(5)Lubricate actuating cylinder hinge points (Ref. 12-22-32, P. Block 1).
(6)Install RH aft door rotating control rod (Ref. 32-22-13, P. Block 401).
(7)Coat with material No.09-001 the zones identified "E". Coat with material 09-002 the zones identified "F".

E. Tests

R (1)Carry out a Nose gear test - main gear on ground (Ref. 32-31-00,
R P. Block 501).
Actuating cylinder shall be carefully checked for evidence of external leakage during pressurization of system and at close-up of test.

F. Close-Up

(1)Remove hydraulic fluid container.
(2)Make certain that working area is clean and clear of tools and miscellaneous items of equipment.
(3)Pressurize hydraulic reservoirs (Ref. 29-14-00, P. Block 301).
WARNING : MAKE CERTAIN THAT DOOR TRAVEL RANGES ARE CLEAR.
(4)Close landing gear doors (Ref. 32-12-11, P. Block 301 or 32-22-11, P. Block 301).
(5)Replenish hydraulic reservoirs as necessary (Ref. 12-12-19, P. Block 1).
(6)Remove warning notices.
(7)Close access doors, remove access platform and safety barriers.
(8)Remove all ground handling and maintenance equipment, standard and special tools, together with ground power and replenishing equipment, all access equipment and miscellaneous items.

NOSE GEAR TELESCOPIC STRUT ASSY (1253) - REMOVAL/INSTALLATION

WARNING : CHECK THAT LANDING GEAR GROUND SAFETIES ARE IN POSITION.

BEFORE APPLYING OR RELIEVING HYDRAULIC SYSTEM PRESSURE MAKE CERTAIN THAT THE TRAVEL RANGES OF THE CONTROL SURFACES ARE CLEAR.

BEFORE PRESSURIZING HYDRAULIC SYSTEMS, CHECK THAT ALL CONTROLS ARE SET TO CORRESPOND WITH THE ACTUAL POSITION OF THE SERVICES THEY OPERATE.

BEFORE POWER IS SUPPLIED TO THE AIRCRAFT, MAKE CERTAIN THAT ELECTRICAL CIRCUIT UPON WHICH WORK IS IN PROGRESS ARE ISOLATED.

BEFORE PRESSURIZING HYDRAULIC SYSTEMS, MAKE CERTAIN THAT HYDRAULIC SYSTEM UNDER MAINTENANCE HAS BEEN ISOLATED.

1. Nose Gear Telescopic Strut Assy

A. Equipment and Materials

ITEM	DESIGNATION
(1)	Hand Pump
(2)98A32203001000	Bar - Hoist Suspension, Nose Gear Telescopic Strut Removal/Installation
(3)	Mini Lift
(4)C1-21870	Positioning Adaptor
(5)C21888-0-1	Ground Safety Lock
(6)D46227	Extractor
(7)D46226	Extractor
(8)	Hydraulic Fluid Container
(9)	Access Platform 2.6 m (8 ft. 7 in.)
10)	Blanking Plugs
11)	Safety Barriers
12)	Warning Notice
13)	Circuit Breaker Safety Clips
14)Material No. 04-004	Common Greases (Ref. 20-31-00)
15)Material No. 04-022	Common Greases (Ref. 20-31-00)
16)Material No. 11-002	Cleaning Agents (Ref. 20-31-00)
17)Material No. 02-002	Hydraulic Fluids (Ref. 20-31-00)
18)Material No. 09-001	Sealants (Ref. 20-31-00)

R **ON A/C 105-200,

R Post SB 32-2068 For A/C 105-200,

R 1. Nose Gear Telescopic Strut Assy

R A. Equipment and Materials

ITEM	DESIGNATION
(1)	Hand Pump
(2)98A32203001000	Bar - Hoist Suspension, Nose Gear Telescopic Strut Removal/Installation
(3)	Minihoist (ALKAN) or equivalent
(4)C1-21870	Positioning Adaptor
(5)C21888-0-2	Ground Safety Lock
(6)H47280	Extractor
(7)D46226	Extractor
(8)	Hydraulic Fluid Container
(9)	Access Platform 2.6 m (8 ft. 7 in.)
10)	Blanking Plugs
11)	Safety Barriers
12)	Warning Notice
13)	Circuit Breaker Safety Clips
14)Material No. 04-004	Common Greases (Ref. 20-31-00)
15)Material No. 04-022	Common Greases (Ref. 20-31-00)
16)Material No. 11-002	Cleaning Agents (Ref. 20-31-00)
17)Material No. 02-002	Hydraulic Fluids (Ref. 20-31-00)
18)Material No. 09-001	Sealants (Ref. 20-31-00)

R **ON A/C 001-100, 105-200,

R Post SB 32-2108 For A/C 001-100,105-200,

R Post SB 32-2068 For A/C 105-200,

18)Material No. 09-039	Sealants (Ref. 20-31-00)

**ON A/C ALL

Referenced Procedures

- 07-11-00, P. Block 1	Jacking for Aircraft Maintenance Operations
- 12-12-29, P. Block 1	Hydraulics
- 12-22-32, P. Block 1	Landing Gear Lubrication
- 29-10-00, P. Block 301	Main Hydraulic Power - Pressurization/ Depressurization
- 29-14-00, P. Block 301	Hydraulic Reservoir Pressurizing System
- 32-12-11, P. Block 301	Main Gear Main Door - (Ground Door(s) Opening)
- 32-22-11, P. Block 301	Nose Gear Main Door - (Ground Door(s) Opening)
- 32-31-00, P. Block 501	Normal Extension and Retraction
- 32-33-00, P. Block 501	Free Fall Extension

R **ON A/C 105-200,

R ---
R ITEM DESIGNATION
R ---
R Post SB 32-2068 For A/C 105-200,

Referenced Procedures
- 07-11-00, P. Block 1 Jacking for Aircraft Maintenance Operations
- 12-12-29, P. Block 1 Hydraulics
- 12-22-32, P. Block 1 Landing Gear - Lubrication
- 29-10-00, P. Block 301 Main Hydraulic Power - Pressurization/ Depressurization
- 29-14-00, P. Block 301 Hydraulic Reservoir Pressurizing System
- 32-12-11, P. Block 301 Main Gear Main Door - (Ground Door(s) Opening)
- 32-22-11, P. Block 301 Nose Gear Main Door - (Ground Door(s) Opening)
- 32-31-00, P. Block 501 Normal Extension and Retraction

R **ON A/C ALL

B. Procedure
(Ref. Fig. 401)
(Ref. Fig. 402)
(1)Job Set-Up
(a)On panel 4VU
- make certain that landing gear control lever is in DOWN position and prohibit its operation by displaying a warning notice.

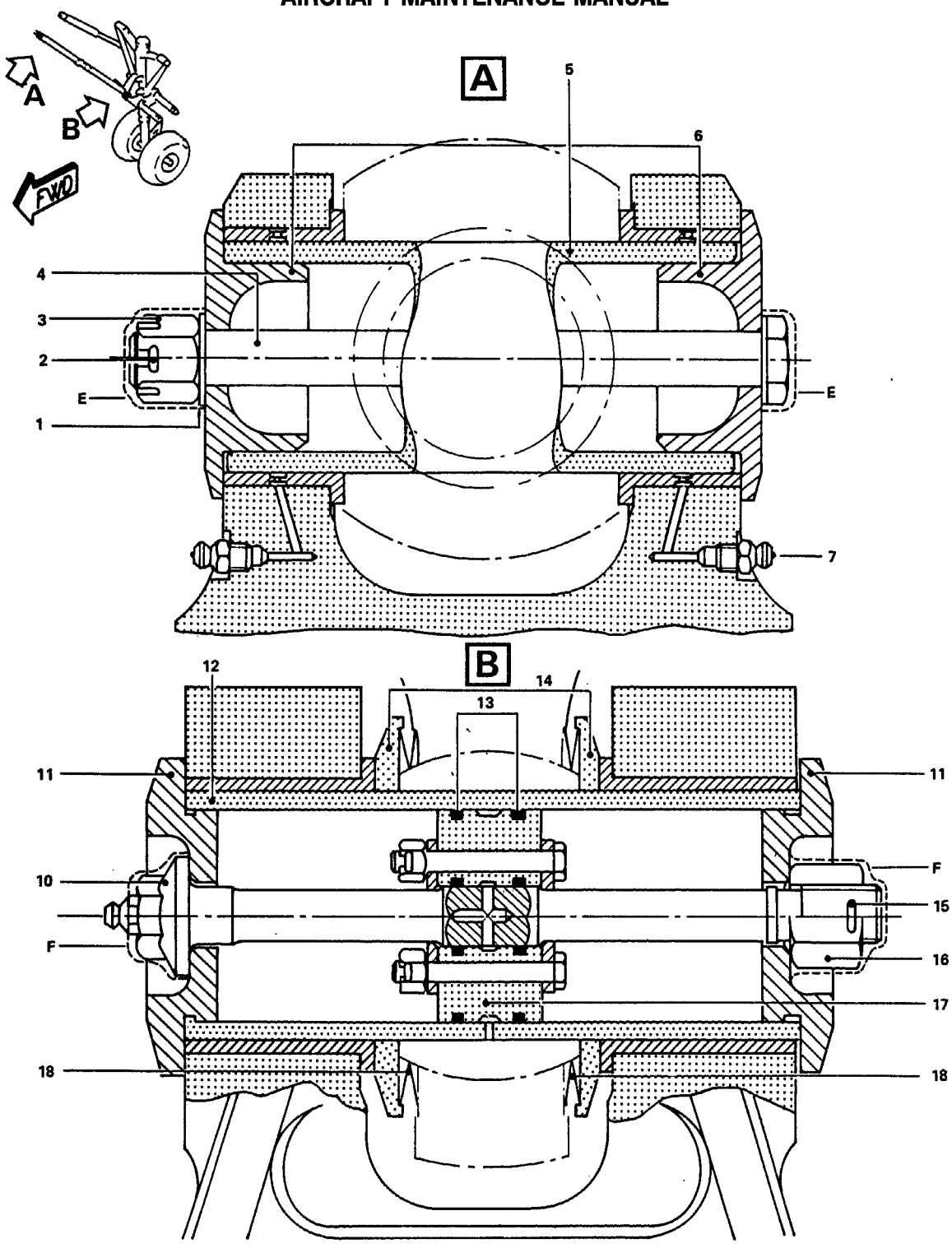
(b)Between the First Officer's and Third Occupant's seats
- make certain that landing gear Free Fall control handle is in Normal position.

(c)Open, safety and tag the following circuit breakers :

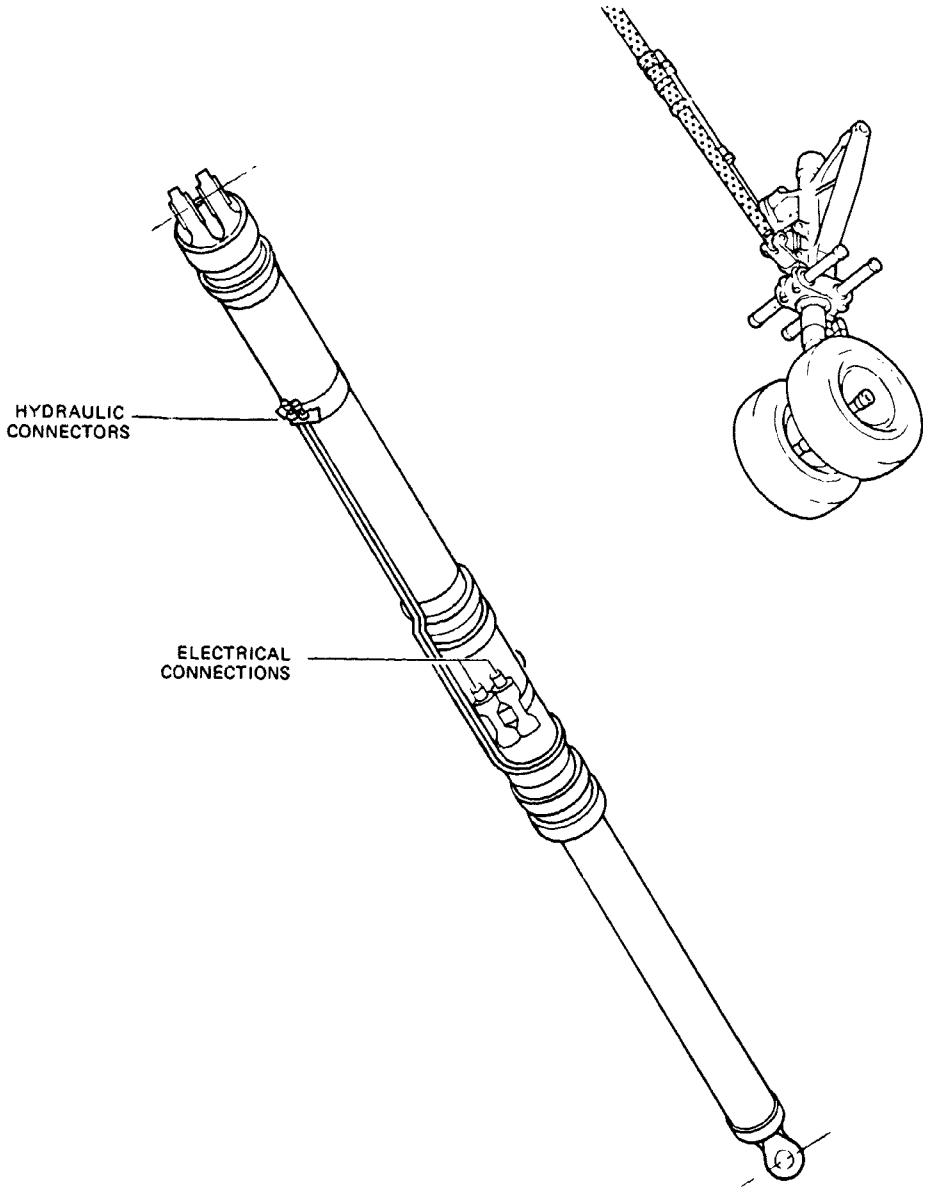
PANEL	SERVICE	IDENT.	LOCATION
133VU	LDG GEAR PROX DET & RELAYS/GEAR DOWN &/POS IND/SYS2/CTR PNL	83GB	331/V51
133VU	LDG GEAR PROX DET & RELAYS/GEAR DOWN &/POS IND/SYS1/CTR PNL	3GB	332/U53

(d)Position access platform.
(e)Position safety barriers prohibiting access to door travel ranges.
WARNING : MAKE CERTAIN THAT THE DOOR TRAVEL RANGES ARE CLEAR.
(f)Open main gear and nose gear doors (Ref. 32-12-11, P. Block 301 and 32-22-11, P. Block 301).
WARNING : WHEN DOORS ARE OPEN MAKE CERTAIN THAT SAFETY COLLARS ARE POSITIONED ON DOOR ACTUATING CYLINDERS.
(g)Depressurize Green hydraulic system (Ref. 29-10-00, P. Block 301) and prohibit its operation by displaying a warning notice
- on Green system ground connectors
- on panel 427VU to prohibit operation of Green electric pumps (ELEC PUMPS pushbutton switch).

(h)Depressurize Green hydraulic reservoir (Ref. 29-14-00, P. Block 301)



Nose Gear Telescopic Strut - Attachments
Figure 401



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Nose Gear Telescopic Strut
Figure 402

and prohibit its pressurization by displaying a warning notice
- on panel 429VU to prohibit APU starting
- on reservoir pressurization connector

(j)Jack up aircraft at foward jacking point ; main gear wheels on the ground (Ref. 07-11-00, P. Block 1).

(k)Position hydraulic fluid container.

(2)Removal

(a)Remove nose gear ground safety pin.

(b)Mark and disconnect hydraulic delivery and return lines.

(c)Disconnect and cap strut electrical connectors.

R **ON A/C 001-100, 105-200,

R Post SB 32-2108 For A/C 001-100,105-200,

NOTE : Remove sealant from connection area of microswitches 40GB and 79GB. Remove and discard heat-shrinkable sleeves.

**ON A/C ALL

(d)Install mini lift and attach positioning adaptor C1-21870 on mini lift and adjust to strut.

(e)Attach hoist suspension bar 98A32203001000 to the aircraft structure.

(f)Disconnect strut lower attachment fitting.

1 Remove cotter pin (15), remove nut (16), remove end cap (11), bolt (10) together with lubrication insert (17) and the other end cap (11). Discard seals (13).

2 Extract hollow pin (12) with extractor D46227. Remove washers (14) and seals (18).

NOTE : Seals (18) should be handled with care so that they can be re-used if necessary.

(g)Disengage strut from fork fitting and move strut into a near vertical position.

(h)Disconnect strut upper attachment fitting.

1 Make certain strut is correctly slung. Remove grease nipples (7).

2 Remove cotter pin (2), remove nut (3), washer (1), end cap (6), bolt (4) and other end cap (6).

3 Extract hollow pin (5) with extractor D46226

4 Disengage and remove strut.

5 Connect hand pump to drag strut hydraulic unions.

6 Release telescopic drag strut downlock mechanism by applying hand pump pressure.

7 Disconnect hand pump from strut hydraulic unions.

(3)Preparation of Replacement Component

(a)Depreserve replacement component. Clean, using Material No. 11-002 and dry with filtered compressed air.

NOTA : If replacement telescopic strut is equipped with seals (18) and washers (14), removed seals (18) and washers (14) must be discarded and those of the replacement strut will be used.

(b)Smear strut sliding rod with aircraft system hydraulic fluid. Move

sliding rod slowly back and forth to free seals.

(c)Check strut installation hardware and fasteners for correct condition.
Clean all components using Material No.11-002 (Ref. 20-31-00) and dry with filtered compressed air.
Make certain that spherical bearings move freely.
Replace all damaged or worn parts.
Install new seals (13) on lubrication insert.

(d)Attach positioning adaptor C1-21870 and strut to mini lift.

(4)Installation

(a)Smear hollow pins with Material No. 04-004 or Material No. 04-022 to facilitate installation.
NOTE : Do not mix Material No. 04-004 with Material No. 04-022. You can use Material No. 04-022 as an alternative to Material No. 04-004. Clean and degrease the parts before you use Material No. 04-022.

(b)Connect strut upper attachment fitting to aircraft.
1 Install strut end fitting in structural spherical fitting.
NOTE : Install strut in near vertical position.
2 Install hollow pin (5).
3 Install end caps (6), bolt (4), washer (1); install nut (3), TORQUE nut to between 7 and 8.2 m.daN (51.7 and 60.5 lbf.ft.) and safety with cotter pin (2).
4 Install grease nipples (7).
5 In zones identified "E", apply a coat of Material No. 09-001

(c)Connect strut lower attachment fitting to gear barrel (shock strut).
1 Bring strut into the locked extended configuration. Carefully wipe strut clean.
WARNING : CHECK THAT STRUT DOWNLOCK VISUAL INDICATOR (GREEN FLAG) IS VISIBLE.
2 Using the handling equipment, guide strut spherical end fitting into gear cylinder fork fitting.
3 Install seals (18) and washers (14).
4 Install hollow pin (12) using extractor D46227.
5 Install bolt (10) together with lubrication insert (17) and end cap (11). Install two new seals (13).
NOTE : Install lubrication insert taking care not to damage seals.
6 Install other end cap (11) and nut (16) ; TORQUE nut to between 7 and 8.2 m.daN (51.7 and 60.5 lbf.ft.). Safety nut with cotter pin (15).
7 In zones identified "F", apply a coat of Material No. 09-001.

(d)Remove handling equipment.

(e)Connect electrical connectors.

R **ON A/C 001-100, 105-200,

R Post SB 32-2108 For A/C 001-100,105-200,

NOTE : Install new heat-shrinkable sleeves on connections of microswitches 40GB and 79GB and apply sealant (Material

No. 09-039).

**ON A/C ALL

(f)Connect hydraulic delivery and return lines.
(g)Lubricate strut hinge points (Ref. 12-22-32, P. Block 1).
(5)Test
(a)Perform a free fall extension functional test (Ref. 32-33-00, P. Block 501).
(b)Carry out a nose gear test, main gear on ground (Ref. 32-31-00, P. Block 501).
Check replacement component for hydraulic fluid leakage.
(6)Close-Up
(a)Remove hydraulic fluid container.
(b)Make certain that working area is clean and clear of tools and miscellaneous items of equipment.
(c)Install nose gear ground safety pin.
WARNING : MAKE CERTAIN THAT THE GEAR TRAVEL RANGES ARE CLEAR.
(d)Lower aircraft onto its wheels (Ref. 07-11-00, P. Block 1).
(e)Pressurize hydraulic reservoirs (Ref. 29-14-00, P. Block 301).
(f)Remove safety clips and tags and close circuit breakers 3GB and 83GB.
WARNING : MAKE CERTAIN THAT THE DOOR TRAVEL RANGES ARE CLEAR.
(g)Close landing gear doors (Ref. 32-12-11, P. Block 301).
(h)Replenish hydraulic reservoirs if necessary (Ref. 12-12-29, P. Block 1).
(j)Remove warning notices.
(k)Close access doors ; remove access platform and safety barriers.
(l)Remove all ground handling and maintenance equipment, standard and special tools, together with ground power and replenishing equipment all access equipment and miscellaneous items.

2. Nose Gear Telescopic Strut-to-Structure Hinge Pin

A. Equipment and Materials

ITEM	DESIGNATION
(1)	Hand Pump
(2)	Electrical Ground Power Unit - 3-Phase, 115/200 V, 400 Hz, 90 KVA
(3)	Access Platform (2.6 m) (8 ft. 7 in.)
(4)	Safety Barriers
(5)	Pair of Circlips Pliers
(6)Material No. 04-004	Common Greases (Ref. 20-31-00)
(7)Material No. 04-022	Common Greases (Ref. 20-31-00)
(8)Material No. 11-002	Cleaning Agents (Ref. 20-31-00)
Referenced Procedures	
- 07-11-00, P. Block 1	Jacking for Aircraft Maintenance Operations
- 32-22-11, P. Block 301	Nose Gear Main Door - (Ground Door(s) Opening)
- 32-31-00, P. Block 501	Normal Extension and Retraction

B. Procedure

(1)Job set-up

(a)On panel 4VU

- make certain that landing gear control lever is in **DOWN** position.

(b)Between First Officer's and Third Occupant's seats

- make certain that landing gear Free Fall control handle is in Normal position.

(c)Position access platform

(d)Position safety barriers prohibiting access to gear door travel ranges.

WARNING : MAKE CERTAIN THAT DOOR TRAVEL RANGES ARE CLEAR

(e)Open nose gear doors (Ref. 32-22-11, P. Block 301).

(f)Jack up aircraft at foward jacking point, main gear wheels on the ground (Ref. 07-11-00, P. Block 1).

(g)Remove nose gear telescopic strut (Ref. paragraph 1.B.(2)).

(2)Removal (Ref. Fig. 403)

(a)Remove left bearing

1 Remove nut and pin (9) securing lubrication insert.

2 Remove shoulder bush (12)

3 Remove lubrication insert (10)

4 Remove nuts (16), retain back-up washers (15) and locating washers (14) for reinstallation and remove the three bolts (17) attaching the bearing on the attachment fitting.

5 Remove spherical bearing (8).

(b)Remove nose gear telescopic strut-to-structure hinge pin (11)

(c)Remove right bearing

1 Remove nuts (3), retain back-up washers (2) and locating washers (1) for reinstallation and remove the three bolts (4)

2 Remove spherical bearing (7)

3 Remove circlips (5) and lubrication insert (6)

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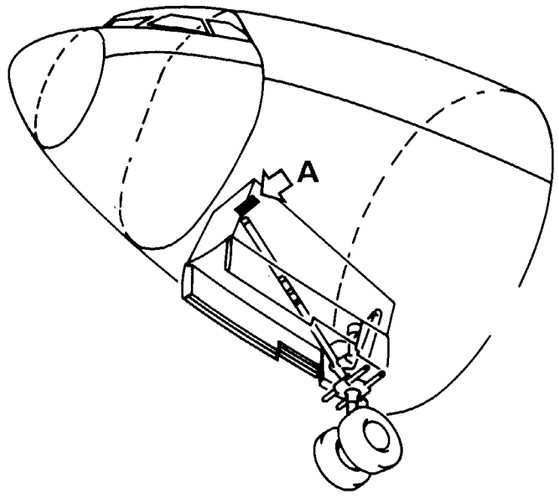
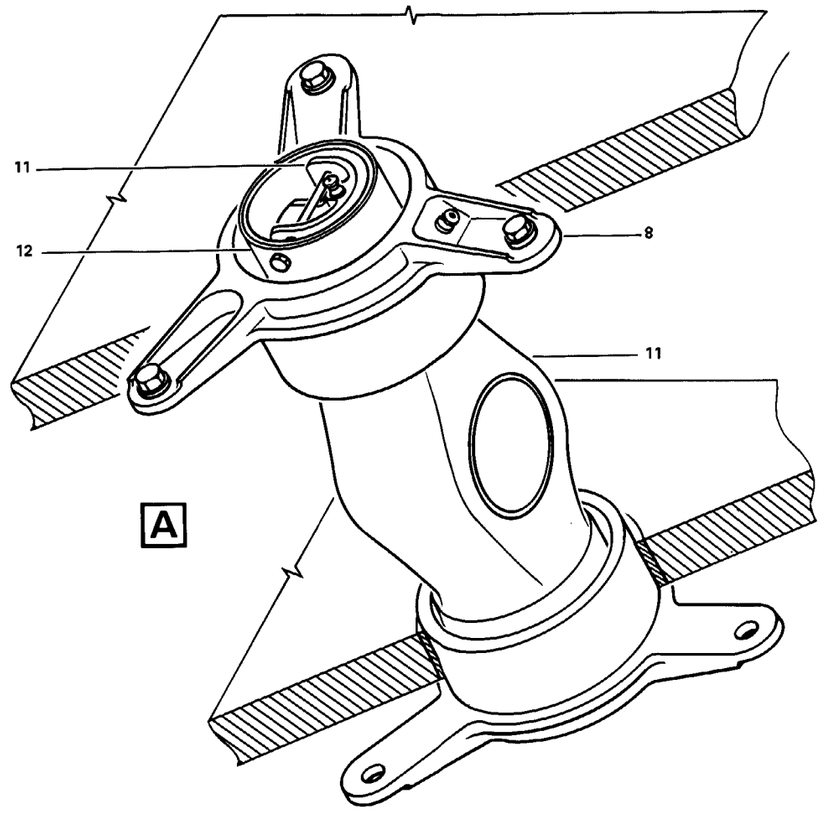
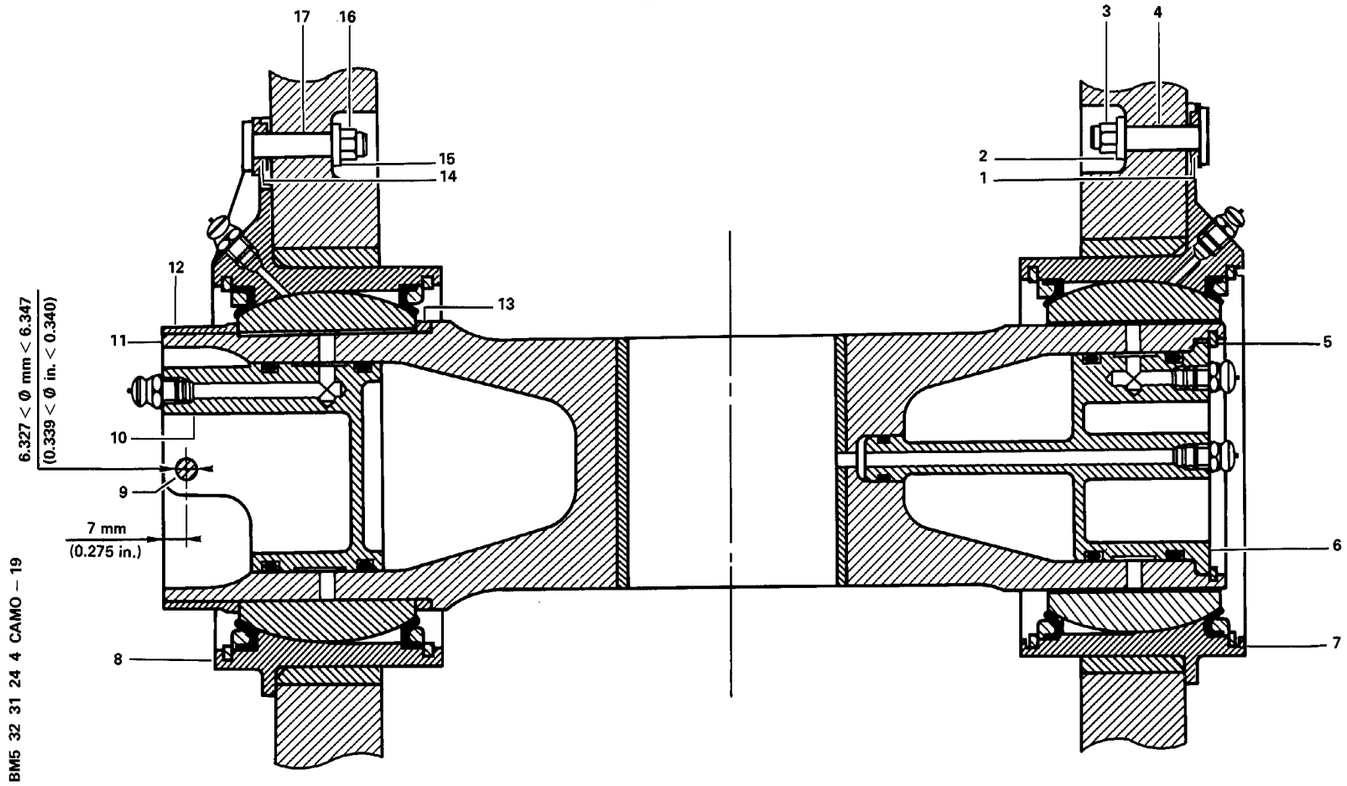






Nose Gear Telescopic Strut-to-Structure Hinge Pin
Figure 403

(3)Preparation of replacement component
(a)Depreserve replacement hinge pin. Clean with Material No.11-002 and dry with filtered compressed air
(b)Check all parts to be installed for correct condition.
Clean all parts with Material No. 11-002 and dry with filtered compressed air.
Make certain that spherical bearings move freely
Replace all damaged or worn parts
Install new seals on lubrication inserts (6) and (10) if necessary.
(4)Installation
(a)Assemble hinge pin and left spherical bearing
1 Install spacer (13) on pin (11).
2 Install lubrication insert (10) in its recess.
3 Install spherical bearing (8) on hinge pin (11)
4 Install shoulder bush (12)
5 Align holes of lubrication insert (10), hinge pin (11) and shoulder bush (12).
Install pin (9), washer and nut. TORQUE to between 0.30 and 0.40 m.daN (27 and 35 lb.in.) and safety with cotter pin. Take care not to damage bush and pin.
NOTE : If a non-drilled hinge pin (11) is used for installation of pin (9) :
- Install spacer (13) in contact with shoulder of hinge pin (11) and inner face of spherical bearing (8).
- Hold shouldered bush (12) against outer face of spherical bearing (8).
- Perform these two operations at the same time to remove any lateral play between hinge pin (11), spacer (13), spherical bearing (8) and shouldered bush (12). Drill a hole in hinge pin (11) and bush (12) using hole in lubrication insert (10) at a guide (Ref. Fig. 403). Grease hole of hinge pin (11), hole of shoulder bush (12) and pin (9) with Material No. 04-004.
Install pin (9), washer and nut TORQUE to between 0.30 and 0.40 m.daN (27 and 35 lb. in.) and safety with cotter pin. Take care not to damage bush and pin.
(b)Install right bearing
1 Install lubrication insert (6) in its recess.
2 Install circlips (5)
3 Install bearing on its attachment fitting with three bolts (4) equipped with washers (2) and (1) and install nuts (3).
(c)Install hinge pin and bearings
1 Install left bearing/hinge pin assembly on structure with three bolts (17) equipped with washers (14) and (15) and install nuts (16). Position the other end of the hinge pin in right bearing (7).
2 TORQUE the three bolts (3) and the three nuts (16) to 0.75 m.daN (66.5 lbf.in.).
3 Make certain that hinge pin/bearing assembly moves freely.
4 Lubricate the bearings with Material No. 04-004 or Material No. 04-022.
NOTE : Do not mix Material No. 04-004 with Material No. 04-022.

You can use Material No. 04-022 as an alternative to Material No. 04-004. Clean and degrease the parts before you use Material No. 04-022.

5 Install nose gear telescopic strut (Ref. paragraph 1.B(4).

WARNING : MAKE CERTAIN THAT THE DOOR TRAVEL RANGES ARE CLEAR

6 Close nose gear doors (Ref. 32-22-11, P. Block 301)

(5)Tests

(a)Perform a free fall extension functional test (Ref. 32-33-00, P. Block 501).

(b)Perform a nose gear test, main gear on ground (Ref. 32-31-00, P. Block 501).

(6)Close-up

(a)Make certain that working area is clean and clear of tools and miscellaneous items of equipment

WARNING : MAKE CERTAIN THAT THE AREA UNDER THE AIRCRAFT IS CLEAR

(b)Lower the aircraft onto its wheels (Ref. 07-11-00, P. Block 1).

3. Nose Landing Gear Telescopic Drag Strut Rocker Arm

A. Equipment and Materials

ITEM	DESIGNATION
(1)	Access Platform 2.6 m (8 ft. 7 in.)
(2)	Warning Notices
(3)	Safety Barriers
(4)Material No. 05-047	Special Materials (Ref. 20-31-00)
(5)Material No. 09-001	Sealants (Ref. 20-31-00)
(6)Material No. 11-002	Cleaning Agents (Ref. 20-31-00)
Referenced Procedures	
- 29-10-00, P. Block 301	Main Hydraulic Power - Pressurization/ Depressurization
- 29-14-00, P. Block 301	Hydraulic Reservoir Pressurizing System
- 32-00-00, P. Block 401	Proximity Detector(s) - General
- 32-12-11, P. Block 301	Main Gear Main Door - (Ground Door(s) Opening)
- 32-22-11, P. Block 301	Nose Gear Main Door - (Ground Door(s) Opening)

B. Procedure

(1)Job Set-Up

(a)On panel 4VU

- make certain that landing gear control lever is in **DOWN** position and prohibit its operation by displaying a warning notice.

(b)Between the First Officer's and Third Occupant's seats

- make certain that landing gear Free Fall control handle is in Normal position.

(c)Open, safety and tag the following circuit breakers :

PANEL	SERVICE	IDENT.	LOCATION
133VU	LDG GEAR PROX DET & RELAYS/GEAR DOWN &/POS IND/SYS2/CTR PNL	83GB	331/V51
133VU	LDG GEAR PROX DET & RELAYS/GEAR DOWN &/POS IND/SYS1/CTR PNL	3GB	332/U53

(d)Position access platform.

(e)Position safety barriers prohibiting access to door travel ranges.

WARNING : MAKE CERTAIN THAT THE DOOR TRAVEL RANGES ARE CLEAR.

(f)Open main gear and nose gear doors (Ref. 32-12-11, P. Block 301 and 32-22-11, P. Block 301).

WARNING : WHEN DOORS ARE OPEN MAKE CERTAIN THAT SAFETY COLLARS ARE POSITIONED ON DOOR ACTUATING CYLINDERS.

(g)Depressurize Green hydraulic system (Ref. 29-10-00, P. Block 301) and prohibit its operation by displaying a warning notice :

- on Green system ground connectors
- on panel 427VU to prohibit operation of Green electric pumps (**ELEC PUMPS** pushbutton switch).

(h)Depressurize Green hydraulic reservoir (Ref. 29-14-00, P. Block 301)

and prohibit its pressurization by displaying a warning notice :
- on panel 429VU to prohibit APU starting
- on reservoir pressurization connector

(j)Remove nose gear telescopic drag strut microswitches (Ref. 32-00-00, P. Block 401, para.2).

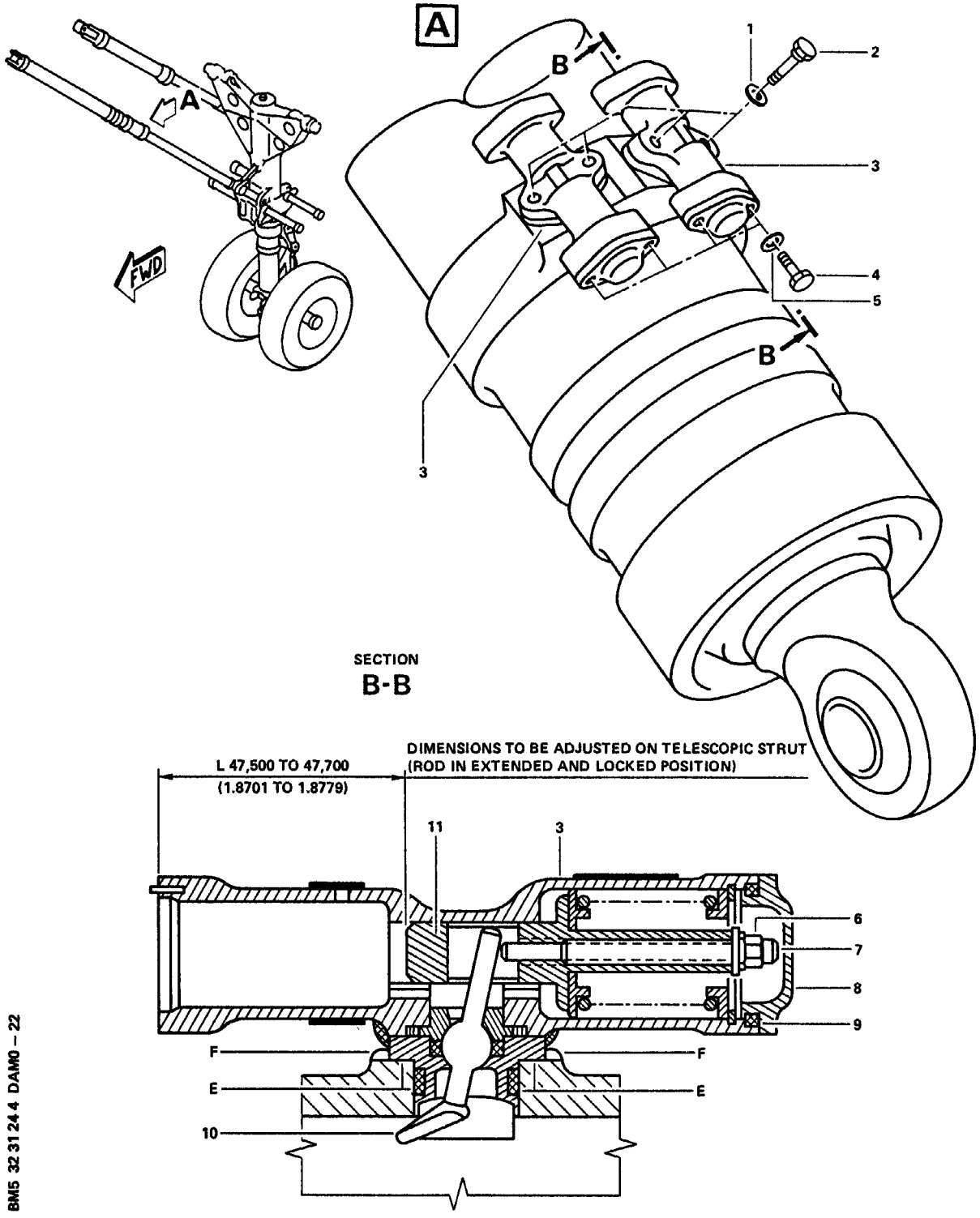
(2)Removal
(Ref. Fig. 404)
(a)Cut and remove lockwire, remove screws (2) and retain washers (1).
(b)Remove body (3).

(3)Preparation of replacement component
(a)Depreserve replacement component.
(b)Clean all parts with Material No. 11-002 and dry with filtered compressed air.

(4)Installation
(a)On zones identified "E", apply a coat of Material No. 05-047.
(b)Install body (3) on nose gear telescopic drag strut.
NOTE : Before inserting the part, check that the rocker (10) finger is in the correct direction.
(c)Install screws (2), washers (1). Tighten screws (2) and safety with lockwashers and lockwire.
(d)On zone identified "F", apply a coat of Material No. 09-001.

(5)Adjustment of body (3) internal mechanism
(a)Remove screws (4) and retain washers (5).
(b)Remove cover (8).
NOTE : The telescopic drag strut must be in extended and locked position.
(c)Using a depth gage, measure dimension L taken between face of pushrod (11) and end of body (3).
(d)Loosen nut (6) and act on screw (7) to obtain dimension L comprised between 47.7 mm (1.878 in.) and 47.5 mm (1.870 in.).
(e)Tighten nut (6) while holding screw (7) in position.
(f)Make certain that cover (8) is equipped with seal (9).
(h)Install cover (8) on body (3).
(j)Install washers (5), screws (4).
Tighten screws (4) and safety with lockwire.

(6)Close-up
(a)Install microswitches on nose gear telescopic drag strut (Ref. 32-00-00, P. Block 401, para.2).
(b)Make certain that working area is clear and clear of tools and miscellaneous items of equipment.
(c)Pressurize hydraulic reservoir (Ref. 29-14-00, P. Block 301).
(d)Close circuit breakers 3GB and 83GB.
WARNING : MAKE CERTAIN THAT DOOR TRAVEL RANGES ARE CLEAR.
(e)Close landing gear doors (Ref. 32-12-11, P. Block 301 and 32-22-11, P. Block 301).
(f)Top up hydraulic reservoirs if necessary.
(g)Remove warning notices.
(h)Remove access platform and safety barriers.



Nose Landing Gear Telescopic Drag Strut Rocker Arm
Figure 404

WARNING : CHECK THAT THE LANDING GEAR GROUND SAFETIES INCLUDING WHEEL CHOCKS ARE IN POSITION.

BEFORE APPLYING OR RELIEVING HYDRAULIC SYSTEM PRESSURE, MAKE CERTAIN THAT THE TRAVEL RANGES OF THE CONTROL SURFACES ARE CLEAR.

BEFORE PRESSURIZING HYDRAULIC SYSTEMS, CHECK THAT ALL CONTROLS ARE SET TO CORRESPOND WITH THE ACTUAL POSITION OF THE SERVICES THEY OPERATE.

BEFORE POWER IS SUPPLIED TO THE AIRCRAFT MAKE CERTAIN THAT ELECTRICAL CIRCUITS UPON WHICH WORK IS IN PROGRESS ARE ISOLATED.

BEFORE PRESSURIZING HYDRAULIC SYSTEMS MAKE CERTAIN THAT HYDRAULIC SYSTEM UNDER MAINTENANCE HAS BEEN ISOLATED.

1. Equipment and Material

	ITEM	DESIGNATION
	A.	Cart - Ground Power Supply and Preliminary Testing 150 l/min. (39.6 US gal/min.) Hydraulic
	B. 99A29001006000	Unit-Topping Up, Hydraulic Tank (Hand Operated)
	C. 97A29102035000	Connector-Pressurizing, Hydraulic Tank
	D. 97A29102062000	Connector-Depressurizing, Hydraulic Tank
	E.	Circuit Breaker Safety Clips
	F. 98A32101506000	Removal/Installation Equipment - Main Landing Gear Doors
	G. 98A32103500004	Safety Net
	H. 98A32101510000	Safety Pin - MLG Door Locking
	J.	Access Platform (2.60 m) (8 ft. 7 in.)
	K.	Blanking Plugs
	L.	Hydraulic Fluid Container
	M.	Safety Barriers
	N.	Warning Notice
	P. Material No. 04-004	Common Greases (Ref. 20-31-00)
R	Q. Material No. 04-022	Common Greases (Ref. 20-31-00)
R	R. Material No. 11-002	Cleaning Agents (Ref. 20-31-00)
	Referenced Procedures	
	- 12-12-29, P. Block 1	Hydraulic Reservoir Replenishing
	- 12-22-32, P. Block 1	Lubrication - Landing Gear
	- 29-10-00, P. Block 301	Main Hydraulic Power - Pressurization/ Depressurization
	- 29-14-00, P. Block 301	Hydraulic Reservoir-Pressurization/ Depressurization
	- 32-12-11, P. Block 301	Main Gear Main Door (Ground Door(s) Opening)
	- 32-31-00, P. Block 501	Normal Extension/Retraction
	- 32-12-11, P. Block 501	Main Gear Door
	- 32-33-00, P. Block 501	Free Fall Extension

2. Procedure

A. Job Set-Up
(1)On panel 4VU
- make certain that landing gear control lever is in DOWN position and prohibit its operation by displaying a warning notice.

(2)Between First Officer's and Third Occupant's seats
- make certain that Free Fall extension control handle is in Normal position and prohibit its operation by displaying a warning notice.

(3)Open, safety and tag the following circuit breakers :

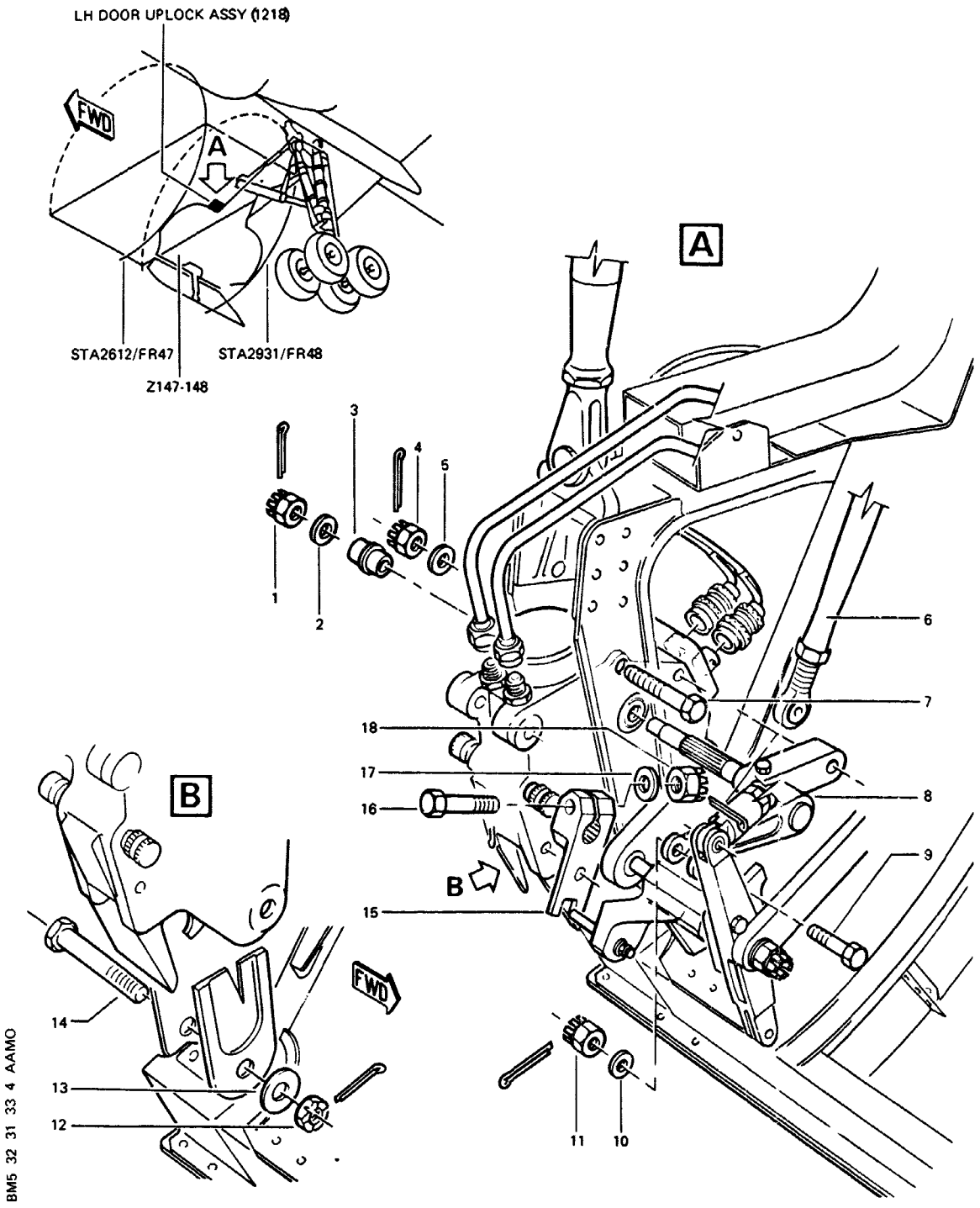
PANEL	SERVICE	IDENT.	LOCATION
133VU	HYDRAULIC/L/G PROX DET/& RELAYS SYS1/GEAR DN &/CTR PNL/POS IND	3GB	332/U53
133VU	HYDRAULIC/L/G PROX DET/& RELAYS SYS2/GEAR DOWN &/OVHD/PNL/POS IND	83GB	331/V51

(4)Position access platform
(5)Position safety barriers prohibiting access to gear door travel ranges.
WARNING : MAKE CERTAIN THAT GEAR DOOR TRAVEL RANGES ARE CLEAR.
(6)Open main gear door corresponding to uplock assembly to be removed (Ref. 32-12-11, P. Block 301).
WARNING : WHEN DOOR IS OPEN, MAKE CERTAIN THAT SAFETY COLLAR IS POSITIONED ON DOOR ACTUATING CYLINDER
(7)Position hydraulic fluid container
(8)Depressurize Green hydraulic reservoir (Ref. 29-14-00, P. Block 301) and prohibit its pressurization by displaying a warning notice.
- on panel 429VU to prohibit APU starting
- on reservoir pressurization connector

(9)Depressurize Green hydraulic system (Ref. 29-10-00, P. Block 301) and prohibit its pressurization by displaying a warning notice :
- on Green hydraulic system ground connectors
- on panel 427VU to prohibit operation of Green electric pumps (ELEC PUMPS pushbutton switch).

B. Removal
(Ref. Fig. 401)
(1)Disconnect and cap electrical connectors.
(2)Mark, disconnect and cap hydraulic lines.
(3)Disconnect Free Fall control rod (6).
(a)Remove cotter pin and nut (11), retain washer (10) and bolt (9).
(b)Disengage control rod (6).
(4)Remove Free Fall control crank
(a)Remove cotter pin and nut (1), retain washer (2) and bush (3).
(b)Disengage and remove Free Fall uplock release control crank (8)
(5)Remove uplock assembly
(a)Disconnect uplock assembly from its upper attachment.
- Remove cotter pin and nut (4) retain washer (5). Remove bolt (7).

(b)Disconnect uplock assembly from its lower attachment.
- Remove cotter pin and nut (12) retain washer (13). Remove bolt (14).



Main Gear Door Uplock Assembly
Figure 401

(c)Remove uplock assembly by lifting it so as to release uplock release fork (15) from its control stud.

C. Preparation of Replacement Component

NOTE : The replacement uplock assembly is filled with aircraft system hydraulic fluid (Ref. 20-31-00).

(1)Depreserve the uplock assembly.

(2)Clean all components needed for installation with Material No.11-002 and dry them with filtered compressed air.

(3)Check the condition of components needed for the installation of the replacement uplock assembly (replace any damaged components).

(4)If replacement component is supplied without hydraulic connectors etc..., recover the connectors installed in the removed component, clean and check them for correct condition and install in replacement component using new seals.

R (5)Smear bolts with Material No. 04-004 or Material No. 04-022 to
R facilitate installation.
R NOTE : Do not mix Material No. 04-004 with Material No. 04-022.
R You can use Material No. 04-022 as an alternative to
R Material No. 04-004. Clean and degrease the parts before you use
R Material No. 04-022.

(6)Transfer uplock release fork (15) to replacement component.

(a)On removed uplock assembly

- remove cotter pin and nut (18), remove and retain washer (17), remove bolt (16).
- free uplock release fork (15) from splined shaft

(b)On replacement uplock assembly

- install uplock release fork (15) on splined shaft

NOTE : The uplock assembly splined shaft, and the splined hole in the head of the fork include respectively a double-width tooth and a matching groove, which fit into each other.

- install bolt (16), install washer (17), screw on and fully tighten nut (18) and safety with a cotter pin.

D. Installation

(1)Install the uplock assembly

(a)Position uplock assembly, taking care to fit uplock release fork (15) over its control stud. Align attachment bores.

(b)Connect the uplock assembly at its upper attachment.

- install bolt (7), washer (5), and nut (4). Safety nut (4) with a cotter pin.

(c)Connect the uplock assembly at its lower attachment.

- insert bolt (14), washer (13), and install nut (12). Safety nut (12) with a cotter pin.

(2)Install Free Fall control rod (6)

(a)Engage control crank in splined shaft

NOTE : The control crank (8) and uplock assembly splined shaft include respectively a double-width tooth and a matching groove which fit into each other.

(b)Install bush (3), washer (2) and nut (1). Safety nut (1) with cotter pin.

(c)Connect control rod (6) to crank. Install bolt (9) and washer (10). Install nut (11) and safety with cotter pin.

(3)Check Free Fall uplock release control for correct adjustment and adjust it necessary (Ref. 32-33-00, P. Block 501).

(4)Check ground uplock release control for correct adjustment and adjust if necessary (Ref. 32-31-00, P. Block 501)

(5)Pull door uplock release control handle down and make certain that hook of uplock assembly concerned is released correctly.
If not, adjust ground uplock release control (Ref. 32-31-00, P. Block 501).

(6)Remove blanking caps and connect hydraulic lines

(7)Remove protective caps and connect electrical connectors.

(8)Lubricate uplock assembly (Ref. 12-22-32, P. Block 1)

(9)Remove safety clips and tags and close circuit breakers 83GB and 3GB.

WARNING : DO NOT WALK ON CLOSED LANDING GEAR DOOR THROUGHOUT DURATION OF MAINTENANCE OPERATIONS
- DISPLAY WARNING NOTICE ON GROUND DOOR OPENING CONTROL HANDLES PROHIBITING OPERATION OF HANDLES TO PREVENT UNCONTROLLED OPENING OF GEAR DOOR,
- DO NOT TOUCH GEAR DOOR FREE FALL RELEASE LINKAGE INSIDE LANDING GEAR WELL.

CAUTION : PRIOR TO INITIAL CLOSING OF DOORS USING HYDRAULIC PRESSURE MAKE CERTAIN HOOK OF UPLOCK ASSEMBLY CONCERNED IS IN UNLOCKED POSITION.

NOTE : Install safety pin 98A32101510000 to immobilize main gear uplock hook before undertaking maintenance work with door closed.
Remove safety pin when operation is completed.

(10)Install safety net in hydraulics compartment

(11)Close the door with the hydraulic test cart hand pump and check that door is locked and bears on its stops (Ref. 32-12-11, P. Block 501)
- install safety strap securing door to structure
If necessary, adjust :
- the vertical position of roller support plate,
- the lateral centering of roller

WARNING : EACH TIME DOOR IS CLOSED :
- MAKE CERTAIN THAT DOOR UPLOCKS CORRECTLY.
ON PANELS 4VU AND 76VU : MAKE CERTAIN THAT CORRESPONDING AMBER DOOR UNLOCKED ANNUNCIATOR GOES OFF.

(12)Disconnect hand pump lines from actuating cylinder and connect aircraft system hydraulic lines to that cylinder.

(13)Remove safety strap.

(14)Remove safety net from hydraulics compartment.

E. Tests

NOTE : Aircraft resting on its wheels ; doors closed.

(1)On panels 400VU and 76VU
- check on left and right main gear and nose gear position annunciators that green arrows are on.

(2)Depressurize Green hydraulic system (Ref. 29-10-00, P. Block 301) and prohibit its pressurization by displaying a warning notice :

- on Green system ground connector
- on panel 427VU, to prohibit Green electric pumps operation (ELEC PUMPS pushbutton switch).

WARNING : MAKE CERTAIN THAT THE DOOR TRAVEL RANGES ARE CLEAR.

(3)Between First Officer's and Third Occupant's seats
- install control handle on Free Fall extension control box and slowly turn handle until all door uplocks are released and doors open. Stop turning handle.

(4)Manually assist doors to fully open position and install safety collars on door actuating cylinders.

(5)Upon completion of check restore mechanical release system to normal operating condition :

(a)Place the four door ground opening controls in OPENED position.

(b)Remove safety collars from door actuating cylinders.

(c)Return Free Fall extension control handle to Normal position.

(d)Pressurize Green hydraulic system using Green electric pumps (Ref. 29-21-00, P. Block 301).

(e)On panel 4VU
- make certain that landing gear control lever is in DOWN position and display a warning notice prohibiting its operation.

WARNING : MAKE CERTAIN THAT DOOR TRAVEL RANGES ARE CLEAR.

(f)Close gear doors by placing the four door ground opening controls in CLOSED position.

NOTE : Carefully check uplock for leakage at first pressurization and upon completion of tests.

(6)Carry out a main gear door ground opering and closing functional test (Ref. 32-31-00, P. Block 501).

F. Close-Up

(1)Remove hydraulic fluid container.

(2)Make certain that working area is clean and clear of tools and miscellaneous items of equipment.

(3)Pressurize hydraulic reservoirs (Ref. 29-14-00, P. Block 301).

CAUTION : MAKE CERTAIN THAT DOOR TRAVEL RANGES ARE CLEAR.

(4)Close landing gear doors (Ref. 32-12-11, P. Block 301).

(5)Replenish hydraulic reservoirs as required (Ref. 12-12-29, P. Block 1).

(6)Remove warning notices.

(7)Close access doors, remove access platform and safety barriers.

(8)Remove all ground handling and maintenance equipment, standard and special tools, together with ground power and replenishing equipment, all access equipment and miscellaneous items.

MAIN GEAR DOOR UPLOCK ASSY (1218-1219) - INSPECTION/CHECK

WARNING : CHECK THAT THE LANDING GEAR GROUND SAFETIES INCLUDING WHEEL CHOCKS ARE IN POSITION.
BEFORE APPLYING OR RELIEVING HYDRAULIC SYSTEM PRESSURE, MAKE CERTAIN THAT THE TRAVEL RANGES OF THE CONTROL SURFACES ARE CLEAR.
BEFORE PRESSURIZING HYDRAULIC SYSTEMS, CHECK THAT ALL CONTROLS ARE SET TO CORRESPOND WITH THE ACTUAL POSITION OF THE SERVICES THEY OPERATE.
BEFORE POWER IS SUPPLIED TO THE AIRCRAFT, MAKE CERTAIN THAT ELECTRICAL CIRCUITS UPON WHICH WORK IS IN PROGRESS ARE ISOLATED.
BEFORE PRESSURIZING HYDRAULIC SYSTEMS, MAKE CERTAINN THAT HYDRAULIC SYSTEMS UNDER MAINTENANCE HAS BEEN ISOLATED.

1. Reason for the Job
Check of the main gear door uplock assemblies.
Aircraft configuration = aircraft on its wheels.

2. Equipment and Materials

ITEM	DESIGNATION
A.	Access Platform (2.60 m) (8 ft. 7 in.)
B.	Safety Barriers
C.	Dynamometer 0 to 10 daN (0 to 22.48 lbf)
D. J47893	Measuring Tool - Load
E.	Warning Notice
Referenced Procedures	
- 32-12-11, P. Block 301	Main Gear Main Door - (Ground Door(s) Opening)
- 32-31-33, P. Block 401	Main Gear Door Uplock Assembly

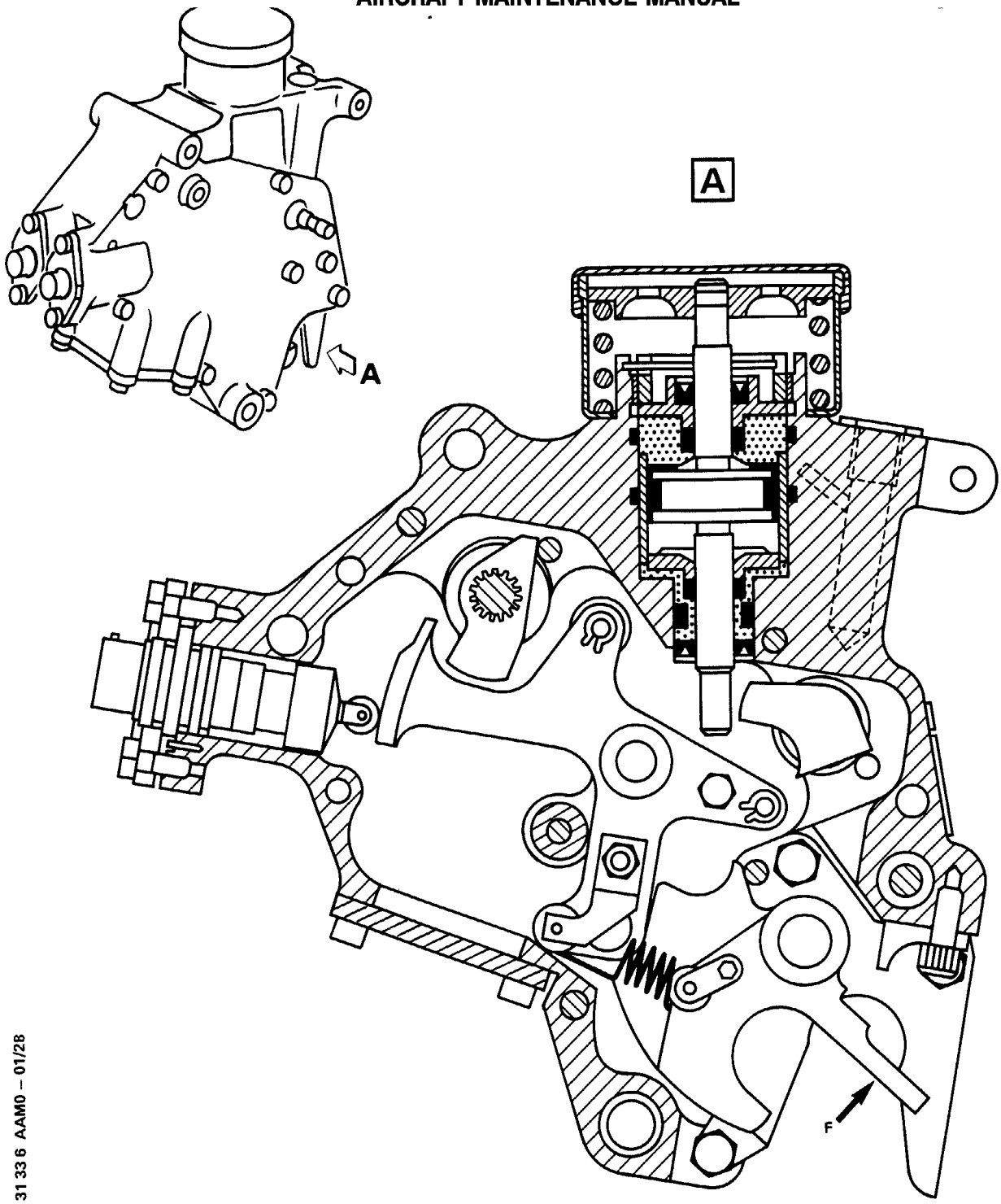
3. Procedure

A. Job Set-Up
(1)On panel 4VU
- make certain that landing gear Normal control lever is in **DOWN** position and prohibit its operation by displaying a warning notice.

(2)Between First Officer's and Third Occupant's seats :
- make certain that Free Fall extension control handle is in Normal position and prohibit its operation by displaying a warning notice.

(3)Position access platform.
(4)Position safety barriers prohibiting access to gear door travel ranges.
WARNING : MAKE CERTAIN THAT THE DOOR TRAVEL RANGES ARE CLEAR.
(5)Open main gear doors using door ground opening control (Ref. 32-12-11, P. Block 301).
WARNING : WHEN DOORS ARE OPEN MAKE CERTAIN THAT SAFETY COLLARS ARE POSITIONED ON DOOR ACTUATING CYLINDERS.

B. Check (Ref. Fig. 601)
(1)Manually open and close hook to detect possible abnormal friction.
(2)Check that hook opens freely.



Main Gear Door Uplock Assy
Figure 601

(3)Check springs for correct condition.
(a)Place hook in opened position.
(b)Using tool J47893 and a dynamometer, apply a load F perpendicular to the tool.
This load increases at the beginning of the hook closing and decreases during the hook locking phase.
(c)Note maximum value of load F just before the beginning of the locking phase.
(4)Approval criteria
(a)A load (F) lower than the minimum values leads to suppose that one of the springs is broken. This load is measured on new uplocks (F min new) or used uplocks (F min used) :

F min new = 1.2 daN (2.69 lbf.).

F min used = 0.72 daN (1.61 lbf.).

(b)If load (F) is lower than the minimum values, remove nose gear door uplock assy and check uplock assy in workshop.
(Ref. 32-31-14, P. Block 401).

C. Close-Up
WARNING : MAKE CERTAIN THAT THE DOOR TRAVEL RANGES ARE CLEAR.
(1)Close nose gear doors using door ground opening control
(Ref. 32-12-11, P. Block 301).
(2)Remove warning notice.
(3)Remove safety barriers prohibiting access to main gear door travel ranges.
(4)Remove access platform.

MAIN GEAR DOOR ACTUATING CYLINDER (1206-1207) - REMOVAL/INSTALLATION

WARNING : CHECK THAT THE LANDING GEAR GROUND SAFETIES INCLUDING WHEEL CHOCKS ARE IN POSITION.
BEFORE APPLYING OR RELIEVING HYDRAULIC SYSTEM PRESSURE, MAKE CERTAIN THAT THE TRAVEL RANGES OF THE CONTROL SURFACES ARE CLEAR.
BEFORE PRESSURIZING HYDRAULIC SYSTEMS, CHECK THAT ALL CONTROLS ARE SET TO CORRESPOND WITH THE ACTUAL POSITION OF THE SERVICES THEY OPERATE.
BEFORE PRESSURIZING HYDRAULIC SYSTEMS MAKE CERTAIN THAT HYDRAULIC SYSTEM UNDER MAINTENANCE HAS BEEN ISOLATED.
BEFORE POWER IS SUPPLIED TO THE AIRCRAFT MAKE CERTAIN THAT ELECTRICAL CIRCUITS UPON WHICH WORK IS IN PROGRESS ARE ISOLATED.

1. Equipment and Materials

	ITEM	DESIGNATION
	A.	Cart-Ground Power Supply and Preliminary Testing 150 l/min (39.6 US gal/min.) Hydraulic
	B. 99A29001006000	Unit-Topping Up, Hydraulic Tank (Hand Operated)
	C. 97A29102035000	Connector-Pressurizing, Hydraulic Tank
	D. 97A29102062000	Connector-Depressurizing, Hydraulic Tank
	E. 98A32101001000	Brace - Hold-Open, Main Gear Door
	F. 98A32101506000	Removal/Installation Equipment - Main Landing Gear Doors
	G.	Minilift
	H.	Access Platform 2.60 m (8 ft. 7 in.)
	J.	Blanking Plugs
	K. 98A32103500004	Safety Net
	L.	Warning Notices
	M.	Hydraulic Fluid Container
	N.	Safety Barriers
	P. Material No. 04-004	Common Greases (Ref. 20-31-00)
R	Q. Material No. 04-022	Common Greases (Ref. 20-31-00)
R	R. Material No. 11-002	Cleaning Agents (Ref. 20-31-00)
	Referenced Procedures	
	- 12-12-29, P. Block 1	Hydraulic Reservoir Replenishing
	- 29-10-00, P. Block 301	Main Hydraulic Power-Pressurization/Depressurization
	- 29-14-00, P. Block 301	Hydraulic Reservoir-Pressurization/ Depressurization
	- 32-12-11, P. Block 301	Main Gear Main Door - (Ground Door(s) Opening)
	- 32-31-00, P. Block 501	Normal Extension and Retraction
	- 32-31-37, P. Block 401	Main Gear Sequence Valve

2. Procedure

A. Job Set-Up
(1)On panel 4VU
- make certain that landing gear control lever is in **DOWN** position and prohibit its operation by displaying a warning notice.

(2)Between First Officer's and Third Occupant's seats
- make certain that landing gear Free Fall extension control handle is in Normal position and prohibit its operation by displaying a warning notice.

(3)Position access platform.

(4)Position safety barriers prohibiting access to travel range of gear door concerned.
WARNING : MAKE CERTAIN THAT THE DOOR TRAVEL RANGES ARE CLEAR.

(5)Open main gear doors (Ref. 32-12-11, P. Block 301).
WARNING : WHEN DOORS ARE OPEN MAKE CERTAIN THAT SAFETY COLLARS ARE POSITIONED ON DOOR ACTUATING CYLINDERS.

(6)Depressurize Green hydraulic reservoir (Ref. 29-14-00, P. Block 301) and prohibit its pressurization by displaying a warning notice.
- on panel 429VU to prohibit APU starting.
- on reservoir pressurization connector.

(7)Depressurize Green hydraulic system (Ref. 29-10-00, P. Block 301) and prohibit its pressurization by displaying a warning notice.
- on Green hydraulic system ground connectors.
- on panel 427VU to prohibit operation of Green electric pumps (ELEC PUMPS pushbutton switch).

B. Removal
(Ref. Fig. 401)

(1)Disconnect and mark hydraulic lines. Install blanking plugs.

(2)Disconnect landing gear sequence valve control rod at its attachment on door fitting (Ref. 32-12-11, P. Block 401), taking care not to disturb its length.
CAUTION : MAINTAIN DOOR FULLY OPEN DURING ACTUATING CYLINDER REMOVAL.

(3)Disconnect actuating cylinder (4) from fork fitting on door (9).
(a)Remove access panel at actuating cylinder attachment on door.
(b)Remove cotter pin and nut (8), washer (7) and bolt (10).

(4)Disconnect actuating cylinder (4) from fork fitting (1) on structure.
(a)Remove cotter pin and nut (3).
(b)Remove washer (2).
(c)Support actuating cylinder and remove bolt (5).
(d)Retain anti-rotation washer (6).

(5)Remove actuating cylinder (4).

(6)Hold door concerned open by means of brace 98A32101001000.

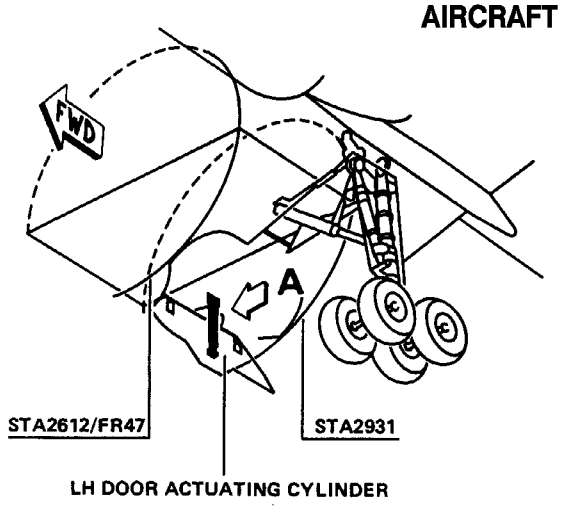
C. Preparation of Replacement Component
NOTE : The replacement actuating cylinder is filled with aircraft system hydraulic fluid.

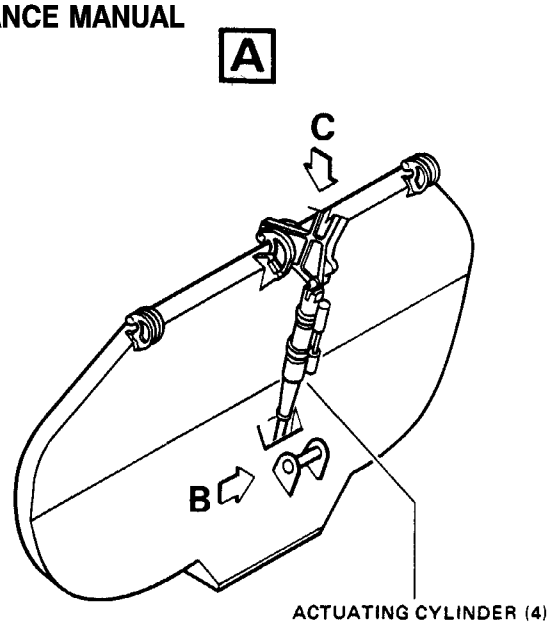
(1)Depreserve actuating cylinder and remove protective coverings.

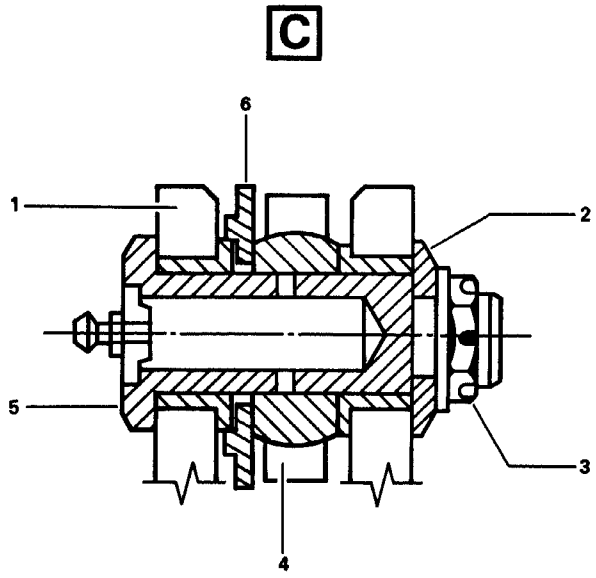
(2)Clean fork fitting bores and bolts using Material No.11-002 and dry with filtered compressed air.

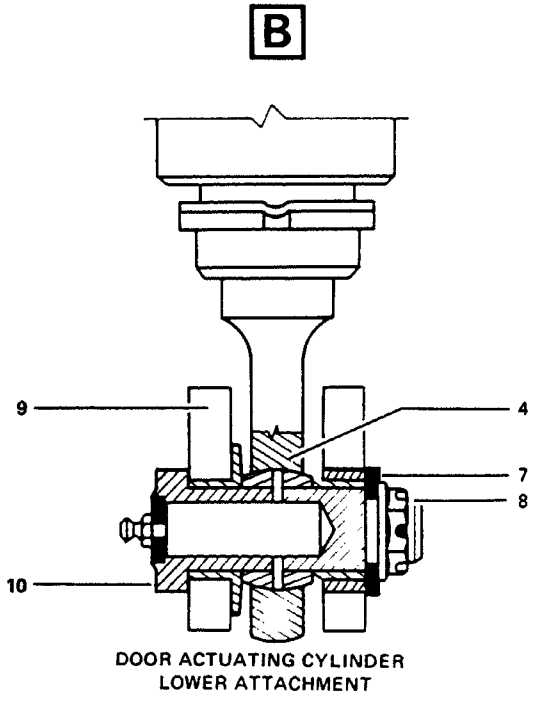
(3)Smear the actuating cylinder sliding rod with aircraft system hydraulic fluid.
Operate the sliding rod slowly to free seals which may be sticking.
Carefully wipe the actuating cylinder clean.

(4)If replacement component is supplied without hydraulic connectors etc. recover the connectors installed on removed component, clean and check









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Main Gear Door Actuating Cylinder
Figure 401

R

them for correct condition and install in replacement component using new seals.

D. Installation (Ref. Fig. 401)

(1)Install safety net in hydraulics compartment

CAUTION : MANUALLY HOLD DOOR OPEN WHEN REMOVING BRACE AND INSTALLING REMOVAL/INSTALLATION DEVICE

(2)Remove brace from door and install door removal/installation equipment 98A32101001000 to hold door open.

(3)Connect actuating cylinder (4) to fork fitting (1) on structure.

(a)Smear bolt (5) with Material No. 04-004 or Material No. 04-022.

NOTE : Do not mix Material No. 04-004 with Material No. 04-022. You can use Material No. 04-022 as an alternative to Material No. 04-004. Clean and degrease the parts before you use Material No. 04-022.

(b)Position anti-rotation washer (6) and replacement actuating cylinder (4).

(c)Install bolt (5), washer (2).

(d)Install nut (3). TORQUE nut 3 to 2 m.daN (177 lbf.in.) and safety nut with cotter pin.

(4)Connect hydraulic test cart hand pump lines to replacement actuating cylinder.

NOTE : Before closing door :
On panels 4VU and 76VU
- make certain that corresponding DOOR unlocked annunciators are on.

(5)Using hand pump, pressurize actuating cylinder until rod is in fully retracted stop position ; keep the cylinder pressurized.
Attach actuating cylinder to structure by means of a sling.

CAUTION : WHILE OPERATING THE DOOR, MAKE CERTAIN THAT THE ACTUATING CYLINDER AND THE LANDING GEAR SEQUENCE VALVE CONTROL ROD DO NOT COME INTO CONTACT WITH THE DOOR.

(6)Close door using minilift and equipment 98A32101506000.

(7)Make certain that door is locked closed.

WARNING : EACH TIME DOOR IS CLOSED :
- MAKE CERTAIN THAT DOOR UPLOCKS CORRECTLY. ON PANELS 4VU AND 76VU,
- MAKE CERTAIN THAT CORRESPONDING DOOR UNLOCKED ANNUNCIATORS ARE OFF.

WARNING : DO NOT WALK ON CLOSED LANDING GEAR DOOR THROUGHOUT DURATION OF MAINTENANCE OPERATIONS
- DISPLAY WARNING NOTICE ON GROUND DOOR OPENING CONTROL HANDLES PROHIBITING OPERATION OF HANDLES TO PREVENT UNCONTROLLED OPENING OF GEAR DOOR,
- DO NOT TOUCH GEAR DOOR FREE FALL LINKAGE INSIDE LANDING GEAR WELL.

(8)Install safety strap securing door structure.

(9)Remove minilift beam assy and cross bar assy.

(e)Apply a coat of Material No. 09-001 to area marked E.

(10)Connect actuating cylinder at fork fitting on door.

(a)Engage actuating cylinder (4) end fitting in door fork fitting (9).

(b)Smear bolt (10) with Material No. 04-004 or Material No. 04-022.

NOTE : Do not mix Material No. 04-004 with Material No. 04-022. You can use Material No. 04-022 as an alternative to Material No. 04-004. Clean and degrease the parts before you use Material No. 04-022.

(c)Install bolt (10), washer (7) and nut (8). TORQUE nut (8) to 2 m.daN (177 lbf.in.) and safety nut (8) with cotter pin.

(d)Close access panel at actuating cylinder-to-door attachment.

(11)Remove safety strap.

NOTE : Do not allow door to fall open abruptly, slowly open door by controlling flow of return fluid to hydraulic ground power cart (restricting fluid return)

WARNING : MAKE CERTAIN THAT THE DOOR TRAVEL RANGES ARE CLEAR.

(12)Move door uplock ground release lever downwards.

(13)Slowly open door by restricting flow of return fluid to hydraulic ground power cart, until door actuating cylinder reaches stop position.

(14)Connect the landing gear sequence valve control rod (Ref. 32-12-11. P. Block 401).

(15)Depressurize actuating cylinder.

(16)On door actuating cylinder, disconnect hand pump hydraulic lines.

(17)Remove blanking plugs and connect aircraft hydraulic lines to the actuating cylinder according to marking made during removal.

(18)Remove safety net from hydraulics compartment (equipment 98A32101506000).

E. Tests

Carry out a door ground opening test (Ref. 32-31-00, P. Block 501).
In the hydraulic compartment, check that the sequence valve control lever moves in accordance with the door travel.
Carefully check actuating cylinder for leakage during initial pressurization and upon completion of tests.

F. Close-Up

(1)Grease actuating cylinder pivot points with Material No. 04-004 or Material No. 04-022.

NOTE : Do not mix Material No. 04-004 with Material No. 04-022. You can use Material No. 04-022 as an alternative to Material No. 04-004. Clean and degrease the parts before you use Material No. 04-022.

(2)Remove hydraulic fluid container.

(3)Make certain that working area is clean and clear of tools and miscellaneous items of equipment.

(4)Pressurize hydraulic reservoirs if necessary (Ref.29-14-00, P. Block 301).

WARNING : MAKE CERTAIN THAT DOOR TRAVEL RANGES ARE CLEAR.

(5)Close landing gear doors (Ref. 32-12-11, P. Block 301).

(6)Replenish hydraulic reservoirs if necessary (Ref.12-12-29, P. Block 1).

(7)Remove warning notices.

(8)Close access doors, remove access platforms and safety barriers.

(9)Remove all ground handling and maintenance equipment, standard and special tools, together with ground power and replenishing equipment, all access equipment and miscellaneous items.

R MAIN GEAR DOOR GROUND OPENING FLEXIBLE CONTROL - REMOVAL/INSTALLATION

WARNING : CHECK THAT THE LANDING GEAR GROUND SAFETIES INCLUDING WHEEL CHOCKS ARE IN POSITION.
BEFORE APPLYING OR RELIEVING HYDRAULIC SYSTEM PRESSURE, MAKE CERTAIN THAT THE TRAVEL RANGES OF THE CONTROL SURFACES ARE CLEAN.
BEFORE PRESSURIZING HYDRAULIC SYSTEMS, CHECK THAT ALL CONTROLS ARE SET TO CORRESPOND WITH THE ACTUAL POSITION OF THE SERVICES THEY OPERATE.
BEFORE PRESSURIZING HYDRAULIC SYSTEMS, MAKE CERTAIN THAT HYDRAULIC SYSTEM UNDER MAINTENANCE HAS BEEN ISOLATED.

1. Equipment and Materials

ITEM	DESIGNATION
1.	Access Platform 2.6 m (8 ft. 6 in.)
2.	Safety Barriers
3. Material No. 04-004	Common Greases (Ref. 20-31-00)
4. Material No. 04-022	Common Greases (Ref. 20-31-00)
5. Material No. 11-003	Cleaning Agents (Ref. 20-31-00)
Referenced Procedure	
- 32-12-11, P. Block 301	Main Gear Main Door (Ground Door CS) Opening - Servicing

2. Procedure

A. Job Set-Up
(1)On panel 4VU
- make certain that landing gear control lever is in DOWN position and prohibit its operation by displaying a warning notice.

(2)Between the First Officer's and Third Occupant's seats
- make certain that Free Fall extension control handle is in Normal position.

(3)Position access platforms.
(4)Position safety barriers prohibiting access to door travel ranges.
WARNING : MAKE CERTAIN THAT THE DOOR TRAVEL RANGES ARE CLEAR.
(5)Open the main gear door concerned (Ref. 32-12-11, P. Block 301).
WARNING : WHEN DOOR IS OPEN MAKE CERTAIN THAT SAFETY COLLAR IS POSITIONED ON DOOR ACTUATING CYLINDER.
(6)Depressurize Green hydraulic reservoir (Ref. 29-14-00, P. Block 301) and prohibit its pressurization by displaying warning notice :
- on panel 429VU to prohibit APU starting
- on reservoir pressurization connector.

(7)Depressurize Green hydraulic system (Ref. 29-10-00, P. Block 301) and prohibit its pressurization by displaying warning notice :
- on Green hydraulic system ground connectors
- on panel 427VU to prohibit operation of Green electric pumps (ELEC PUMPS pushbutton switch).

B. Removal of Cable and Sheath
(1)Disengage eye end fitting from handle (Ref. Fig. 401).

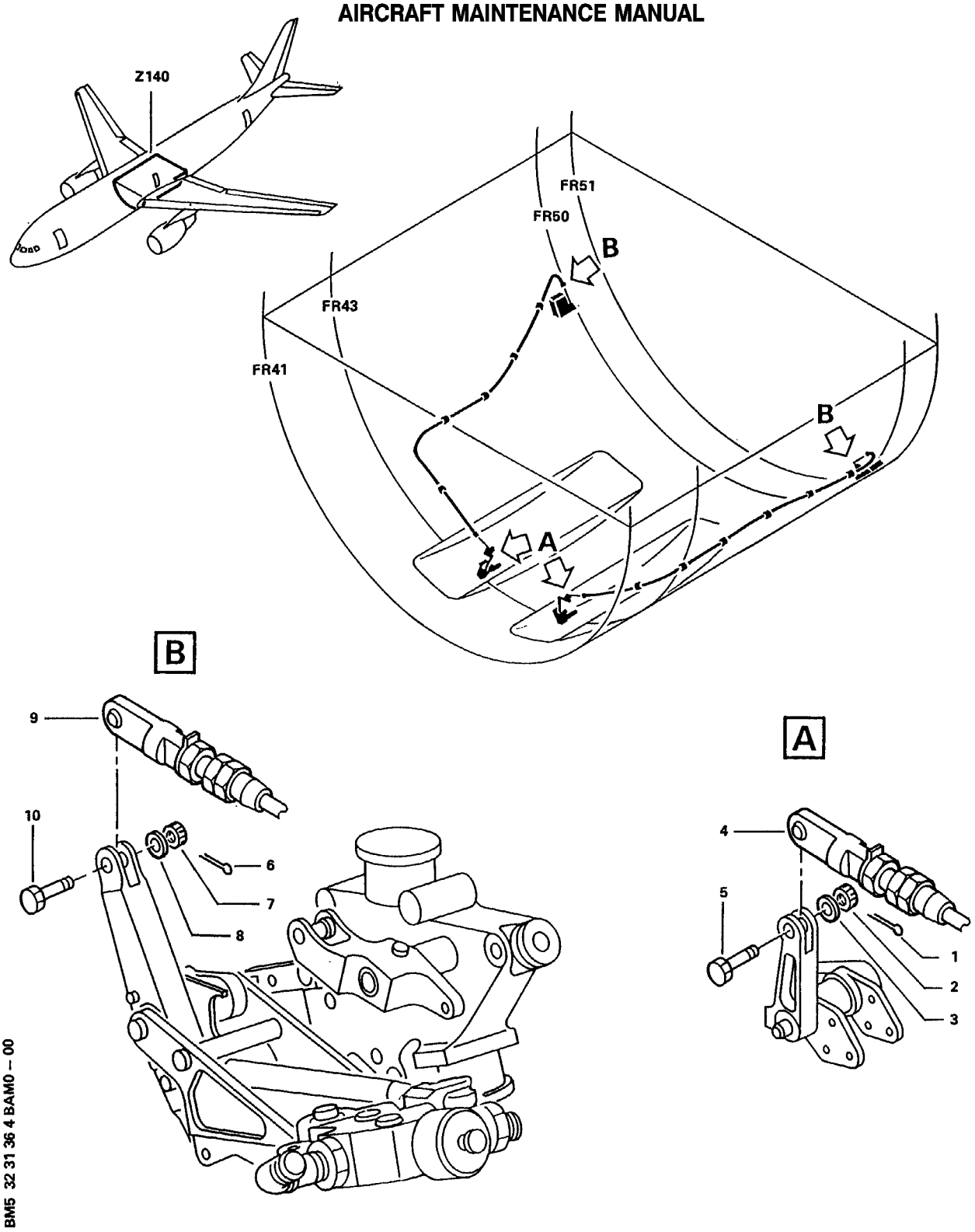
(a)Remove cotter pin (1).
(b)Loosen castellated nut (2), retain washer (3).
(c)Extract bolt (5) and disengage eye end fitting (4).
(d)Loosen safety nut (16) and unscrew tightening cone (15) to release the cable (Ref. Fig. 402).
(e)Unscrew eye end fitting (4) with items (16, 17, 18 and 19) from cable (12).
(f)Remove tightening cone (15) and sliding tube (14) from swivel tube (13).

(2)Disengage eye end fitting from uplock door (Ref. Fig. 401).
(a)Remove cotter pin (6).
(b)Loosen castellated nut (7), retain washer (8).
(c)Extract bolt (10) to disengage eye end fitting (9).

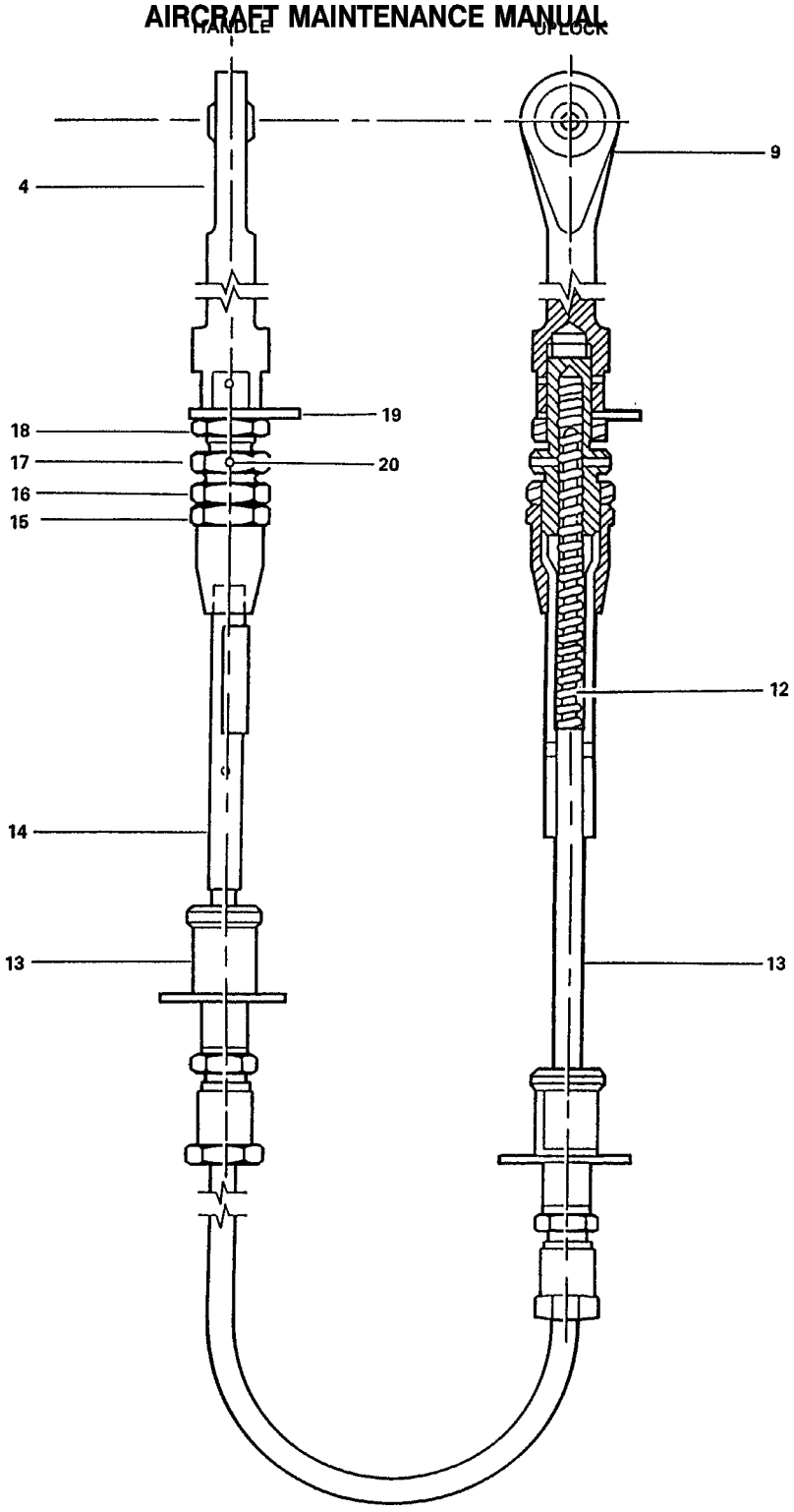
(3)Removal of sheath (Ref. Fig. 403)
CAUTION : BEFORE REMOVING THE SHEATH (MADE IN THREE PARTS), IT IS NECESSARY TO MARK ITS ROUTING BY A TAPE OR A CABLE TO FACILITATE ITS INSTALLATION.
(a)At connection of both sheathes (31), cut and remove lockwire and unscrew nuts (32) from union (33).
(b)At both ends of the sheath, on support (42), unsafety and unscrew nut (37).
(c)On support (42), loosen nuts (39), remove swivel tube (13), extracts bolts (40).
(d)Remove screws (35) from clamps (36).
(e)For removing the sheath, route it in parts inside the bulkheads.

C. Preparation of Replacement Component
(1)The MLG door unlocking controls must be depreserved at time of installation.
(2)Remove the anti-corrosion grease before installation.
NOTE : Do not use Material No. 11-003.
R (3)Grease the cable using Material No. 04-004 or Material No. 04-022.
R NOTE : Do not mix Material No. 04-004 with Material No. 04-022.
R You can use Material No. 04-022 as an alternative to
R Material No. 04-004. Clean and degrease the parts before you use
R Material No. 04-022.

D. Installation of Cable and Sheath
CAUTION : DURING SHEATH INSTALLATION, TAKE CARE NOT TO DAMAGE OR BEND THE SHEATH.
(1)Installation of sheath (Ref. Fig. 403)
(a)Engage the sheath in parts into the bulkheads.
(b)Install union (33) on nuts (32).
(c)Tighten nuts (32) and wirelock.
(d)Install screws (35) on clamps (36).
(e)On support (42), install swivel tube (13) with union (38) on the sheath end. Do not tighten nut (37) at this stage.
(f)Install bolts (40) and nuts (39) on support (42).
NOTE : Take care to get the correct positioning of swivel tube lug (41) on support (42).
(g)Tighten nuts (39).



Flexible Control
Figure 401



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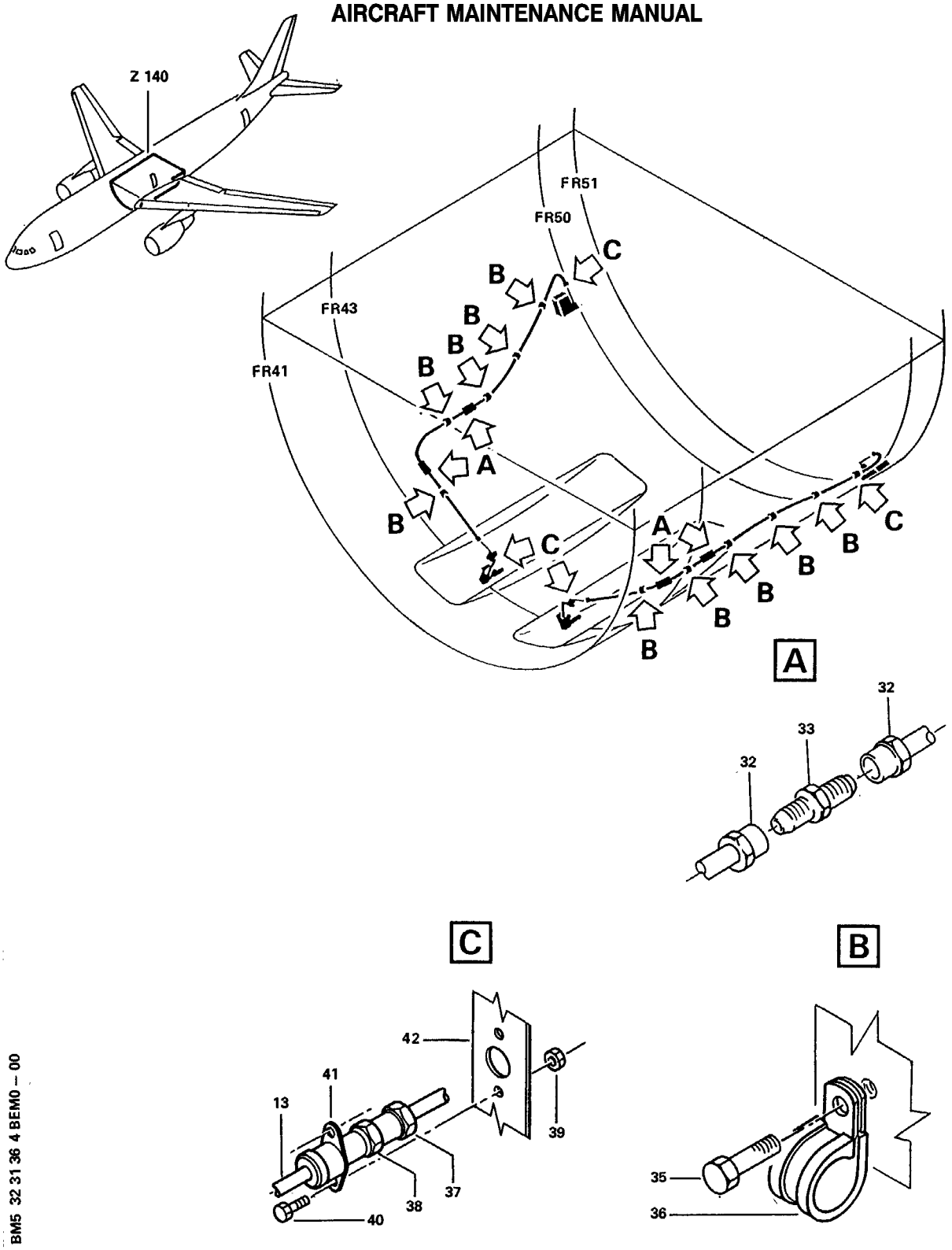
Flexible Control Cable
Figure 402



Routing of Cable
Figure 403

(h)Tighten nuts (37).

(2)Installation of eye end fitting from uplock door (Ref. Fig. 402).

(a)Engage the sliding tube (14) provided with tightening cone (15) on
R cable (12), already greased with Material No. 04-004 or
R Material No. 04-022 (sliding tube engaged first).
R NOTE : Do not mix Material No. 04-004 with Material No. 04-022.
R You can use Material No. 04-022 as an alternative to
R Material No. 04-004. Clean and degrease the parts before you use
R Material No. 04-022.

(b)Screw eye end fitting (9) with items (16), (17), (18), (19) on cable (12).
Check through witness hole (20) that cable (12) is screwed in sufficiently.

(c)Tighten cone (15) on eye end fitting union (17) and lock nut (16).

(d)Engage cable (12) into the sheath through swivel tube (13), taking care not to bend the swivel tube.

(e)Engage and position eye end fitting (9) on the uplock door. (Ref. Fig. 401)

(f)Install bolt (10), washer (8) and castellated nut (7).

(g)Tighten nut (7) and secure with cotter pin (6).

(3)Installation of eye end fitting from handle (Ref. Fig. 402)

(a)Engage sliding tube (14) provided with tightening cone (15) on cable (12) (sliding tube engaged first).

(b)Screw eye end fitting (4) with items (16), (17), (18), (19).

(c)Check through witness hole (20) that cable (12) is screwed in sufficiently.

E. Adjustment

(1)For adjustment of main gear door ground opening, refer to 32-31-00, P. Block 501 Para. (6)(b).

(2)When length is correctly adjusted, tighten cone (15) on eye end fitting (17) and locknut (16).

(3)Safety with lock washer (19).

(4)To connect eye end fitting (4) to handle, install bolts (5), washer (3), castellated nut (2).

(5)Tighten nut (2) and secure with cotter pin (1).

F. Close-Up

(1)Perform a manual ground door opening and closing test (Ref. 32-12-11, P. Block 301).

(2)Remove access platforms and safety barriers.

MAIN LANDING GEAR DOOR GROUND OPENING CONTROL CABLE DEACTIVATION/REACTIVATION

Ref. MMEL Sect. 1-32 Item 1 (MLG Door Ground Opening Cable)

1. MLG Door Ground Opening Control Cable Deactivation

WARNING : CHECK THAT LANDING GEAR GROUND SAFETIES INCLUDING WHEEL CHOCKS ARE IN POSITION.
BEFORE APPLYING OR RELIEVING HYDRAULIC SYSTEM PRESSURE, MAKE CERTAIN THAT THE TRAVEL RANGES OF THE CONTROL SURFACES ARE CLEAR.
BEFORE PRESSURIZING HYDRAULIC SYSTEMS, CHECK THAT ALL CONTROLS ARE SET TO CORRESPOND WITH THE ACTUAL POSITION OF THE SERVICES THEY OPERATE.
BEFORE PRESSURIZING HYDRAULIC SYSTEMS, MAKE CERTAIN THAT HYDRAULIC SYSTEM UNDER MAINTENANCE HAS BEEN ISOLATED.
BEFORE POWER IS SUPPLIED TO THE AIRCRAFT, MAKE CERTAIN THAT ELECTRICAL CIRCUITS UPON WHICH WORK IS IN PROGRESS ARE ISOLATED.

A. Reason for the Job
Ref. MMEL Sect. 1-32 Item 1 (MLG Door Ground Opening Cable)

B. Equipment and Materials

	ITEM	DESIGNATION
	(1)98A32301001000	Pin-Rigging, Landing Gear Emergency Lowering Control
	(2)98A32101500000	Safety Collar - Main Gear Door Actuating Cylinder
R	(3)	Access Platforms 2.6 m (8 ft. 7 in.)
R	(4)	Safety Barriers
R	(5)	Hydraulic Fluid Container
R	(6)	Blanking Plugs/Caps
R	(7)	Warning Notices
	Referenced Procedures	
	- 12-12-29, P. Block 1	Hydraulics
	- 29-10-00, P. Block 301	Main Hydraulic Power - Pressurization/ Depressurization
	- 29-14-00, P. Block 301	Hydraulic Reservoir Pressurizing System
	- 32-12-11, P. Block 301	Main Gear Main Door - (Ground Door(s) Opening)
	- 32-31-36, P. Block 401	Main Gear Door Ground Opening Flexible Control
	- 32-33-00, P. Block 201	Free Fall Extension

C. Procedure
(1)Job set-up
(a)On panel 4VU
- make certain that landing gear control lever is in DOWM position and prohibit its operation by displaying a warning notice.

(b)Between First Officer's and Third Occupant's seats :
- make certain that landing gear Free Fall extension control handle is in Normal position.

(c)Position access platforms.
(d)Position safety barriers prohibiting access to door travel ranges.
WARNING : MAKE CERTAIN THAT DOOR TRAVEL RANGES ARE CLEAR.
(e)Depressurize Green hydraulic reservoir (Ref. 29-14-00, P. Block 301) and prohibit its pressurization by displaying a warning notice :
- on panel 429VU to prohibit APU starting
- on reservoir pressurization connector.
(f)Depressurize Green hydraulic system (Ref. 29-10-00, P. Block 301) and prohibit its pressurization by displaying a warning notice :
- on Green hydraulic system ground connectors
- on panel 427VU to prohibit operation of Green electric pumps (ELEC PUMPS pushbutton switch).
(g)Open the main gear doors (Ref. 32-12-11, P. Block 301).
WARNING : WHEN DOORS ARE OPEN, MAKE CERTAIN THAT SAFETY COLLARS ARE POSITIONED ON DOOR ACTUATING CYLINDERS.
MAKE CERTAIN THAT DOOR TRAVEL RANGES ARE CLEAR.
1 Open door ground opening control access door.
2 Place control handle in OPENED position as follows :
- remove safety pin from handle
- press pushbutton and move handle downwards
- release pushbutton ; handle locks automatically.
3 Insert safety pin to lock handle.
4 Make certain that door opens.
NOTE : It is possible that the doors will not open fully under their own weight, in which case it will be necessary to assist them manually at the end of travel.
5 Install safety collar on door actuating cylinder.
6 Place door ground opening control handle in CLOSED position.
WARNING : CHECK THAT GREEN HYDRAULIC SYSTEM IS DEPRESSURIZED AND PROHIBIT PRESSURIZATION BY DISPLAYING A WARNING NOTICE.
MAKE CERTAIN THAT LANDING GEAR SAFETIES ARE IN POSITION.
7 If door opening is not possible with door ground opening system (broken cable), perform a main gear door opening by gravity :
WARNING : MAKE CERTAIN THAT NOSE LANDING GEAR AND MAIN LANDING GEAR TRAVEL RANGES ARE CLEAR.
CHECK THAT GREEN HYDRAULIC SYSTEM IS DEPRESSURIZED AND PROHIBIT PRESSURIZATION BY DISPLAYING A WARNING NOTICE.
WHEN DOORS ARE OPEN, MAKE CERTAIN THAT SAFETY COLLARS ARE POSITIONED ON DOOR ACTUATING CYLINDERS.
- with control handle on Free Fall extension control box, slowly turn handle clockwise until all door uplocks are released and doors open
- stop turning handle
- check that all doors are open
- manually assist doors to fully open position and install safety collars on door actuating cylinders
- continue to turn control handle clockwise until 20th turn.

(2)Deactivation of the MLG door ground opening control cable
WARNING : MAKE CERTAIN THAT DOOR TRAVEL RANGES ARE CLEAR.
NOTE : The defective opening cable can be removed, or left in position with the cable ends disconnected from the door release lever and

mechanical control. If disconnected, the cable ends must be safety stowed and secured.

(a)Remove the defective cable (Ref. 32-31-36, P. Block 401), or disconnect the cable ends as follows :

1 Disengage eye end fitting from handle (Ref. Fig. 901).
- remove cotter pin (1)
- loosen castellated nut (2), retain washer (3)
- extract bolt (5) and disengage eye end fitting (4)
- stow the cable end and secure it in position with a cable-tie.

2 Disengage eye end fitting from mechanical shaft (Ref. Fig. 901).
- remove cotter pin (6)
- loosen castellated nut (7), retain washer (8)
- extract bolt (10) and disengage eye end fitting (9)
- stow the cable end and secure it in position with a cable-tie.

(b)Make sure that a safety collar is installed on the applicable MLG door actuating cylinder.

(c)Make sure that the by-pass valve is in normal position as follows :
- rigging pin 98A32301001000 can be readily inserted in main gear door uplock release lever
- if rigging pin installation is not possible, manually move the operating lever until the rigging pin holes are aligned
- remove the rigging pin and secure the operating lever in the rigged position with lockwire through the rigging pin holes

(d)Remove safety collar from actuating cylinder.

(e)Close the MLG doors as follows :

WARNING : MAKE CERTAIN THAT DOOR TRAVEL RANGES ARE CLEAR.

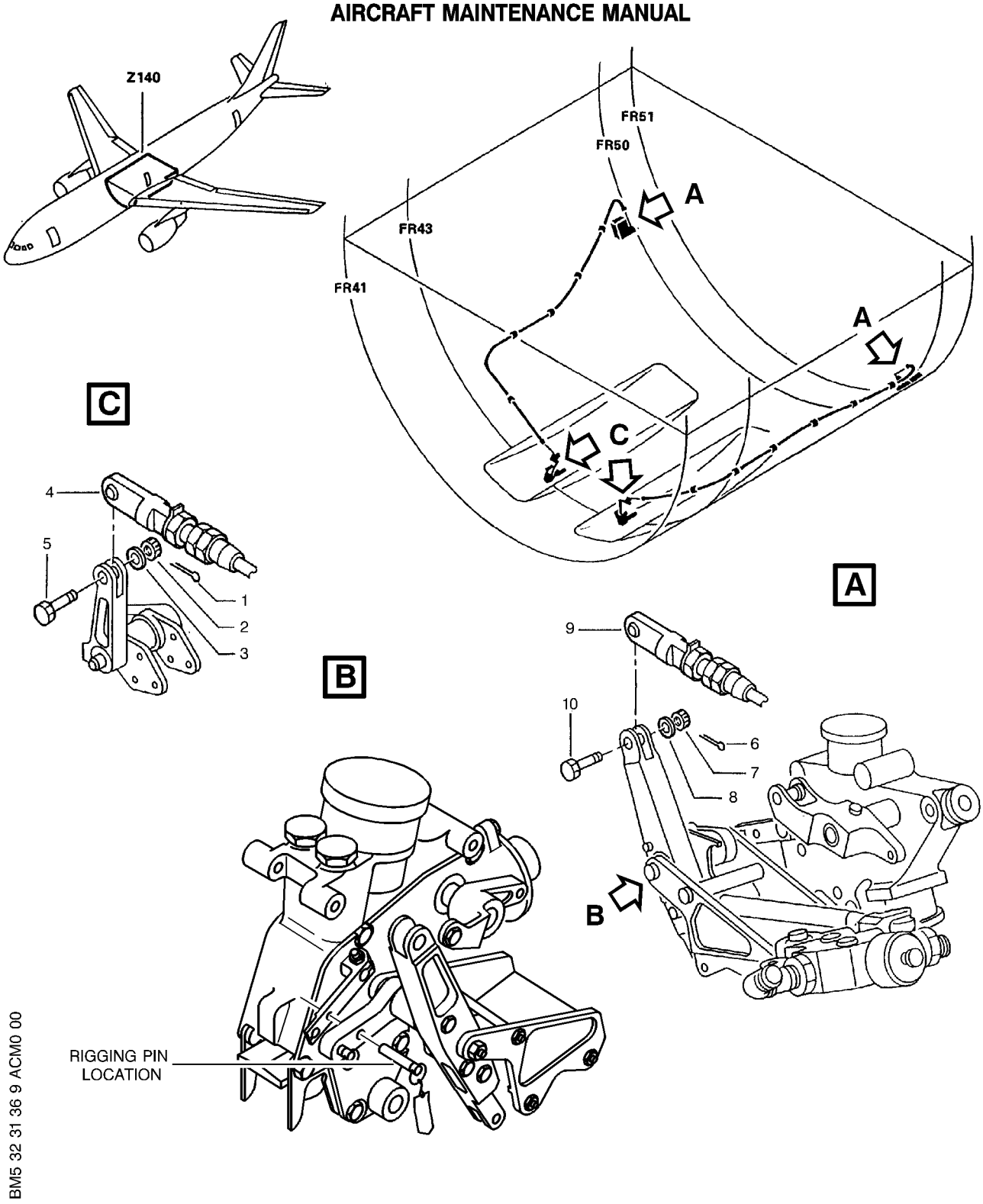
CAUTION : PRIOR TO INITIAL CLOSING OF DOORS USING HYDRAULIC PRESSURE, MAKE CERTAIN THAT HOOK OF UPLOCK ASSEMBLY CONCERNED IS IN UNLOCKED POSITION.

- if operated for the door opening, return landing gear Free Fall extension control handle to Normal position, in mechanical counterclockwise stop position
- pressurize Green hydraulic system (Ref. 29-10-00, P. Block 301)
- make sure that the MLG doors are closed and correctly locked.

2. MLG Door Ground Opening Control Cable Reactivation

WARNING : CHECK THAT LANDING GEAR GROUND SAFETIES INCLUDING WHEEL CHOCKS ARE IN POSITION.
BEFORE APPLYING OR RELIEVING HYDRAULIC SYSTEM PRESSURE, MAKE CERTAIN THAT THE TRAVEL RANGES OF THE CONTROL SURFACES ARE CLEAR.
BEFORE PRESSURIZING HYDRAULIC SYSTEMS, CHECK THAT ALL CONTROLS ARE SET TO CORRESPOND WITH THE ACTUAL POSITION OF THE SERVICES THEY OPERATE.
BEFORE PRESSURIZING HYDRAULIC SYSTEMS, MAKE CERTAIN THAT HYDRAULIC SYSTEM UNDER MAINTENANCE HAS BEEN ISOLATED.
BEFORE POWER IS SUPPLIED TO THE AIRCRAFT, MAKE CERTAIN THAT ELECTRICAL CIRCUITS UPON WHICH WORK IS IN PROGRESS ARE ISOLATED.

A. Equipment and Materials



MLG Door Ground Opening System
Figure 901

	ITEM	DESIGNATION
	(1)98A32301001000	Pin-Rigging, Landing Gear Emergency Lowering control
	(2)98A32101500000	Safety Collar - Main Gear Door Actuating Cylinder
R	(3)	Access Platforms 2.6 m (8 ft. 7 in.)
R	(4)	Safety Barriers
R	(5)	Hydraulic Fluid Container
R	(6)	Blanking Plugs/Caps
R	(7)	Warning Notices
	Referenced Procedures	
	- 12-12-29, P. Block 1	Hydraulics
	- 29-10-00, P. Block 301	Main Hydraulic Power - Pressurization/ Depressurization
	- 29-14-00, P. Block 301	Hydraulic Reservoir Pressurizing System
	- 32-12-11, P. Block 301	Main Gear Main Door - (Ground Door(s) Opening)
	- 32-31-36, P. Block 401	Main Gear Door Ground Opening Flexible Control
	- 32-33-00, P. Block 201	Free Fall Extension

B. Procedure

(1)Job set-up

(a)On panel 4VU

- make certain that landing gear control lever is in DOWM position and prohibit its operation by displaying a warning notice.

(b)Between First Officer's and Third Occupant's seats :

- make certain that landing gear Free Fall extension control handle is in Normal position.

(c)Position access platforms.

(d)Position safety barriers prohibiting access to door travel ranges.

WARNING : MAKE CERTAIN THAT DOOR TRAVEL RANGES ARE CLEAR.

(e)Depressurize Green hydraulic reservoir (Ref. 29-14-00, P. Block 301) and prohibit its pressurization by displaying a warning notice :

- on panel 429VU to prohibit APU starting
- on reservoir pressurization connector.

(f)Depressurize Green hydraulic system (Ref. 29-10-00, P. Block 301) and prohibit its pressurization by displaying a warning notice :

- on Green hydraulic system ground connectors
- on panel 427VU to prohibit operation of Green electric pumps (ELEC PUMPS pushbutton switch).

(g)Open the MLG doors by the free fall system as follows :

WARNING : MAKE CERTAIN THAT NOSE LANDING GEAR AND MAIN LANDING GEAR DOOR TRAVEL RANGES ARE CLEAR.
CHECK THAT GREEN HYDRAULIC SYSTEM IS DEPRESSURIZED AND PROHIBIT PRESSURIZATION BY DISPLAYING A WARNING NOTICE.
WHEN DOORS ARE OPEN, MAKE CERTAIN THAT SAFETY COLLARS ARE POSITIONED ON DOOR ACTUATING CYLINDERS.

- with control handle om Free Fall extension control box, slowly turn handle clockwise until all door uplocks are released and doors open

- stop turning handle
- check that all doors are open
- place the four door ground opening controls in **OPENED** position
- manually assist doors to fully open position and install safety collars on door actuating cylinders
- continue to turn control handle clockwise until 20th turn.

(2)Reactivation of the **MLG** door ground opening control cable

(a)Remove and discard the lockwire from the operating lever control valve rigging pin holes.

(b)Install the rigging pin **98A32301001000** in the rigging pin holes of main gear door uplock release lever.

(c)Install a new cable (Ref.32-31-36, P. Block 401).

(d)Place main gear door ground opening control handle in **OPENED** position.

(e)Upon completion of check, restore mechanical release system to normal operating condition :

1 Remove safety collars from door actuating cylinders.

2 Return Free fall extension control handle to normal position, in mechanical counterclockwise stop position.

(3)Test

(a)Perform a manual ground door opening and closing test (Ref. 32-12-11, P. Block 301).

(4)Close-Up

(a)Make sure that the work area is clean and clear of tool(s) and other items.

(b)Close the access door **148BR**

(c)Close the applicble **MLG** door (Ref. 32-12-11, P. Block 301).

(d)Remove the ground support and maintenance equipment, the special and standard tools and all other items.

(e)Remove the warning notices.

(f)Remove access platforms and safety barriers.

MAIN GEAR SEQUENCE VALVE (1214-1215) - REMOVAL/INSTALLATION

WARNING : CHECK THAT THE LANDING GEAR GROUND SAFETIES INCLUDING WHEEL CHOCKS ARE IN POSITION.
BEFORE APPLYING OR RELIEVING HYDRAULIC SYSTEM PRESSURE, MAKE CERTAIN THAT THE TRAVEL RANGES OF THE CONTROL SURFACES ARE CLEAR.
BEFORE PRESSURIZING HYDRAULIC SYSTEMS, CHECK THAT ALL CONTROLS ARE SET TO CORRESPOND WITH THE ACTUAL POSITION OF THE SERVICES THEY OPERATE.
BEFORE POWER IS SUPPLIED TO THE AIRCRAFT, MAKE CERTAIN THAT ELECTRICAL CIRCUITS UPON WHICH WORK IS IN PROGRESS ARE ISOLATED.
BEFORE PRESSURIZING HYDRAULIC SYSTEMS, MAKE CERTAIN THAT HYDRAULIC SYSTEM UNDER MAINTENANCE HAS BEEN ISOLATED.

1. Equipment and Materials

	ITEM	DESIGNATION
	A. 99A29001006000	Unit - Topping Up, Hydraulic Tank (Hand Operated)
	B. 97A29102035000	Connector-Pressurizing, Hydraulic Tank
	C. 97A29102062000	Connector-Depressurizing, Hydraulic Tank
	D. 98A32301018000	Pin-Rigging, Main Gear Selector Control
	E.	Access Platform 2.60 m (8 ft. 7 in.)
	F.	Blanking Plugs
	G.	Warning Notices
	H.	Hydraulic Fluid Container
	J.	Safety Barriers
R	K. 98A32101505000	Rigging-Pin, Main Gear Door Control
R	L.	Scraper
R	M. Material No. 08-002	Bonding and Adhesive Compounds (Ref. 20-31-00)
R	N. Material No. 11-002	Cleaning Agents (Ref. 20-31-00)
	Referenced Procedures	
	- 12-12-29, P. Block 1	Hydraulic Reservoir Replenishing
	- 29-10-00, P. Block 301	Main Hydraulic Power - Pressurization/ Depressurization
	- 29-14-00, P. Block 301	Hydraulic Reservoir - Pressurization/ Depressurization
	- 32-12-11, P. Block 301	Main Gear Main Door - (Ground Door(s) Opening)
	- 32-31-00, P. Block 501	Normal Extension and Retraction

2. Procedure

A. Job Set-Up
(1)On panel 4VU
- make certain that landing gear control lever is in **DOWN** position and prohibit its operation by displaying a warning notice.

(2)Between First Officer's and Third Occupant's seats
- make certain that landing gear Free Fall extension control handle is in Normal position.

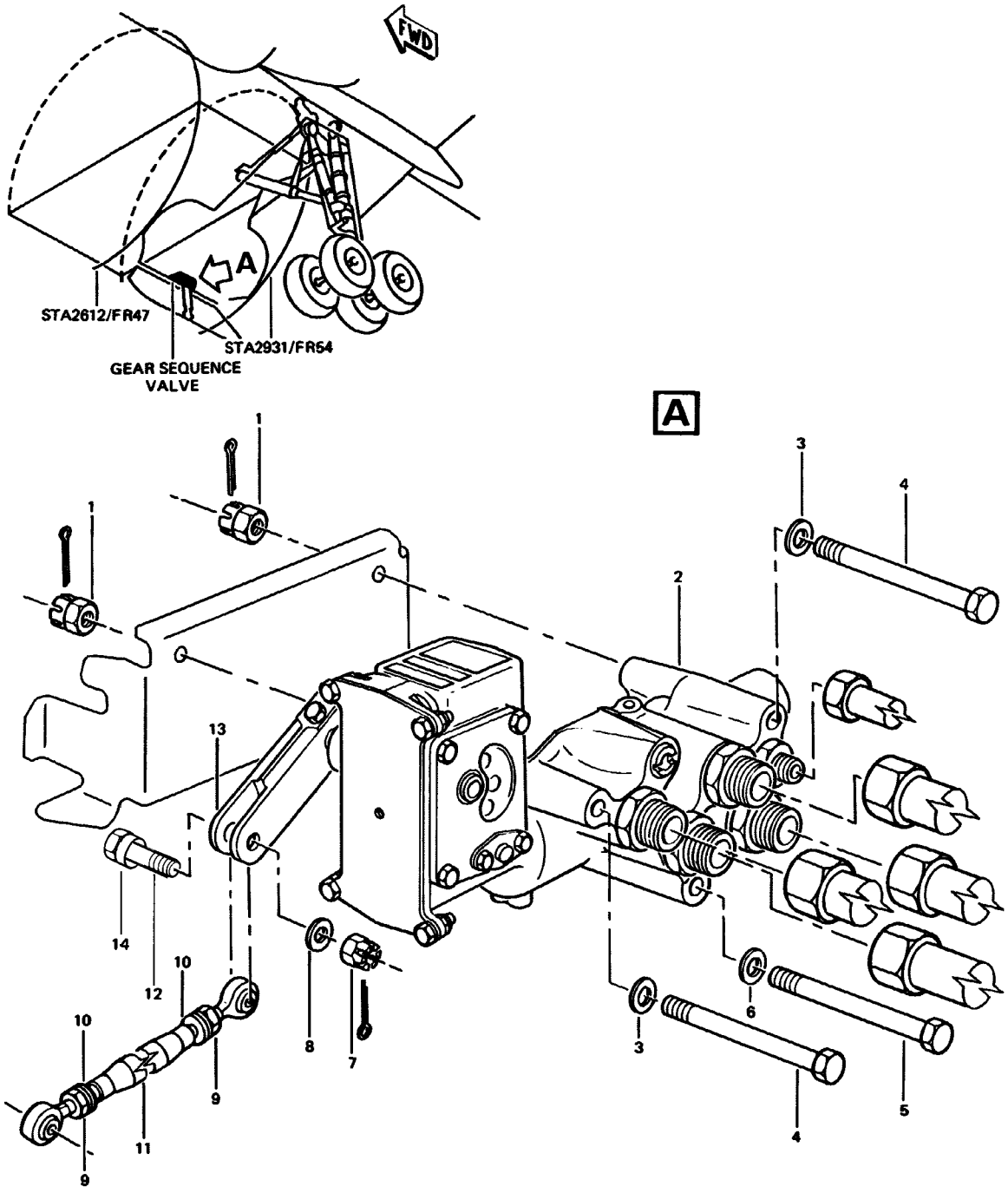
(3)Position access platform.

(4)Position safety barriers prohibiting access to main gear door travel ranges.
WARNING : MAKE CERTAIN THAT DOOR TRAVEL RANGES ARE CLEAR.
(5)Open main gear door associated with sequence valve to be removed (Ref. 32-12-11, P. Block 301).
WARNING : WHEN DOORS ARE OPEN MAKE CERTAIN THAT SAFETY COLLARS ARE POSITIONED ON DOOR ACTUATING CYLINDERS.
(6)Depressurize Green hydraulic system (Ref. 29-10-00, P. Block 301) and prohibit its pressurization by displaying a warning notice.
- on Green hydraulic system ground connectors
- on panel 427VU to prohibit operation of Green electric PUMPS (ELEC PUMPS pushbutton switch).
(7)Depressurize Green hydraulic reservoir (Ref. 29-14-00, P. Block 301) and prohibit its pressurization by displaying a warning notice.
- on panel 429VU to prohibit APU starting
- on reservoir pressurization connector.
(8)Position hydraulic fluid container.

B. Removal
(Ref. Fig. 401)
(1)Mark, disconnect and blank off hydraulic lines.
(2)Disconnect rod (11) from lever (13) :
(a)Remove cotter pin and nut (7).
R (b)Retain washer (8) and remove bolt (12) and bushing (14).
(3)Remove sequence valve (2).
(a)Remove bolt (5), retain washer (6).
(b)Remove cotter pin and nuts (1), retain washers (3) and remove bolts (4).
(c)Remove sequence valve (2).

C. Preparation of Replacement Component
NOTE : Sequence valve is filled with aircraft system hydraulic fluid (Ref. 20-31-00).
(1)Depreserve sequence valve by removing external protections.
(2)Clean all components using Material No. 11-002 (Ref. 20-31-00). Dry with filtered compressed air.
(3)If replacement component is supplied without hydraulic unions recover unions from removed component, clean and check them for correct condition, and install on replacement component with new seals.
R (4)Visually inspect bushing (14).
R If bushing (14) replacement is necessary :
R (a)Remove bushing (14) from bolt (12).
R (b)Remove excess adhesive compound on bolt (12) with a scraper.
R (c)Clean bolt (12) using Material No. 11-002 (Ref. 20-31-00). Dry with
R filtered compressed air.
R (d)Install new bushing (14) on bolt (12) using Material No. 08-002
R (Ref. 20-31-00).

D. Installation
(1)Install sequence valve (2).
(a)Position sequence valve (2) on its support.



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Main Gear Sequence Value
Figure 401

R

(b)Install bolt (5) equipped with washer (6).
(c)Install bolts (4) equipped with washers (3) ; tighten nuts (1).
(d)Safety nuts (1) and bolt (5).
(2)Connect rod (11) to lever (13).
(a)Make certain that gear door is fully open (Door actuating cylinder in fully extended position).
R (b)Connect rod (11) to lever (13) using bushing (14) and bolt (12).
(c)Install washer (8) and nut (7) on bolt (12) and safety nut with cotter pin.
(d)Install rigging pin 98A32301018000 on lever (13) and sequence valve (2).
(e)Install rigging pin 98A32101505000 in lever integral with rod (11) and in door center hinge side plates. If rigging pin cannot be installed :
1 Cut and remove lockwire, disengage lock washers (10), unscrew nuts (9).
2 Adjust rod (11) length until it is possible to insert rigging pin.
3 Engage lock washers (10), tighten nuts (9) and wirelock.
(f)Remove rigging pins.
(3)Remove blanking caps and connect hydraulic lines.

E. Tests
(1)Perform a landing gear Normal extension and retraction functional test (Ref. 32-31-00, P. Block 501).
Carefully check replacement component for external leakage during initial pressurization and upon completion of tests.

F. Close-Up
(1)Remove hydraulic fluid container.
(2)Make certain that working area is clean and clear of tools and miscellaneous items of equipment.
(3)Pressurize hydraulic reservoirs (Ref. 29-14-00, P. Block 301).
WARNING : MAKE CERTAIN THAT DOOR TRAVEL RANGES ARE CLEAR.
(4)Close landing gear doors (Ref. 32-12-11, P. Block 301).
(5)Replenish hydraulic reservoirs if necessary (Ref. 12-12-29, P. Block 1).
(6)Remove warning notices.
(7)Close access doors, remove access platform and safety barriers.
(8)Remove all ground handling and maintenance equipment, standard and special tools, together with ground power and replenishing equipment, all access equipment and miscellaneous items.

WARNING : CHECK THAT THE LANDING GEAR GROUND SAFETIES INCLUDING WHEEL CHOCKS ARE IN POSITION.
BEFORE APPLYING OR RELIEVING HYDRAULIC SYSTEM PRESSURE, MAKE CERTAIN THAT THE TRAVEL RANGES OF THE CONTROL SURFACES ARE CLEAR.
BEFORE PRESSURIZING HYDRAULIC SYSTEMS, CHECK THAT ALL CONTROLS ARE SET TO CORRESPOND WITH THE ACTUAL POSITION OF THE SERVICES THEY OPERATE.
BEFORE POWER IS SUPPLIED TO THE AIRCRAFT, MAKE CERTAIN THAT ELECTRICAL CIRCUITS UPON WHICH WORK IS IN PROGRESS ARE ISOLATED.
BEFORE PRESSURIZING HYDRAULIC SYSTEM, MAKE CERTAIN THAT HYDRAULIC SYSTEM UNDER MAINTENANCE HAS BEEN ISOLATED.

1. Uplock Assembly

A. Equipment and Materials

ITEM	DESIGNATION
A. 98A32201004000	Pin - Rigging, Landing Gear Emergency Lowering Control
B. 98A27901011000	Pin - Rigging, Landing Gear Emergency Lowering Control
C.	Access Platforms 2 - 2.6 m (6 ft. 7 in. - 8 ft. 7 in.)
D.	Blanking Plugs/Caps
E.	Hydraulic Fluid Container
F.	Warning Notices
G.	Safety Barriers
H.	Circuit Breaker Safety Clips
J. Material No. 02-002	Hydraulic Fluids (Ref. 20-31-00)
K. Material No. 04-004	Common Greases (Ref. 20-31-00)
L. Material No. 11-002	Cleaning Agents (Ref. 20-31-00)
Referenced Procedures	
- 12-12-29, P. Block 1	Hydraulics
- 29-10-00, P. Block 301	Main Hydraulic Power-Pressurization/Depressurization
- 29-14-00, P. Block 301	Hydraulic Reservoir Pressurizing System
- 32-12-11, P. Block 301	Main Gear Main Door - (Ground Door(s) Opening)
- 32-31-00, P. Block 501	Normal Extension and Retraction
- 32-33-00, P. Block 501	Free Fall Extension

R

B. Procedure

(1)Job set-up

(a)On panel 4VU

- make certain that landing gear control lever is in **DOWN** position and prohibit its operation by displaying a warning notice.

(b)Between the First Officer's and Third Occupant's seats

- make certain that Free Fall extension control handle is in Normal

position.

(c)Open, safety and tag the following circuit breakers :

PANEL	SERVICE	IDENT.	LOCATION
133VU	HYDRAULIC/L/G PROX DET/& RELAYS SYS1/GEAR ON &/CTR PNL/POS IND	3GB	332/U53
133VU	HYDRAULIC/L/G PROX DET/& RELAYS SYS2/GEAR DOWN &/OVHD PNL/POS IND	83GB	331/V51

(d)Position access platforms.

(e)Position safety barriers prohibiting access to door travel ranges.

WARNING : MAKE CERTAIN THAT THE DOOR TRAVEL RANGES ARE CLEAR.

(f)Open the main gear door concerned (Ref. 32-12-11, P. Block 301).

WARNING : WHEN DOOR IS OPEN MAKE CERTAIN THAT SAFETY COLLAR IS POSITIONED ON DOOR ACTUATING CYLINDER.

(g)Depressurize Green hydraulic reservoir (Ref. 29-14-00, P. Block 301) and prohibit its pressurization by displaying warning notice :
- on panel 429VU to prohibit APU starting
- on reservoir pressurization connector.

(h)Depressurize Green hydraulic system (Ref. 29-10-00, P. Block 301) and prohibit its pressurization by displaying warning notice :
- on Green hydraulic system ground connectors
- on panel 427VU to prohibit operation of Green electric pumps (ELEC PUMPS pushbutton switch).

(j)Position hydraulic fluid container.

(2)Removal

R (Ref. Fig. 401)

(a)Mark and disconnect hydraulic lines. Blank open line ends.

(b)Mark, disconnect and cap electrical connectors.

(c)Disconnect universal joint (4) from bellcrank (5) :

R 1 Remove cotter pins, nuts (2) and retain washers (3).
2 Remove universal joint (4).

(d)Disconnect spring rod (12) from brace strut.
1 Remove cotter pin and nut (15), retain washer (14)
2 Remove bolt (13) and disconnect spring rod (12).

CAUTION : MAKE CERTAIN THAT UPLOCK ASSEMBLY IS MAINTAINED IN ITS INITIAL POSITION.

(e)Disconnect uplock assembly from its upper attachment to multiple clevis.

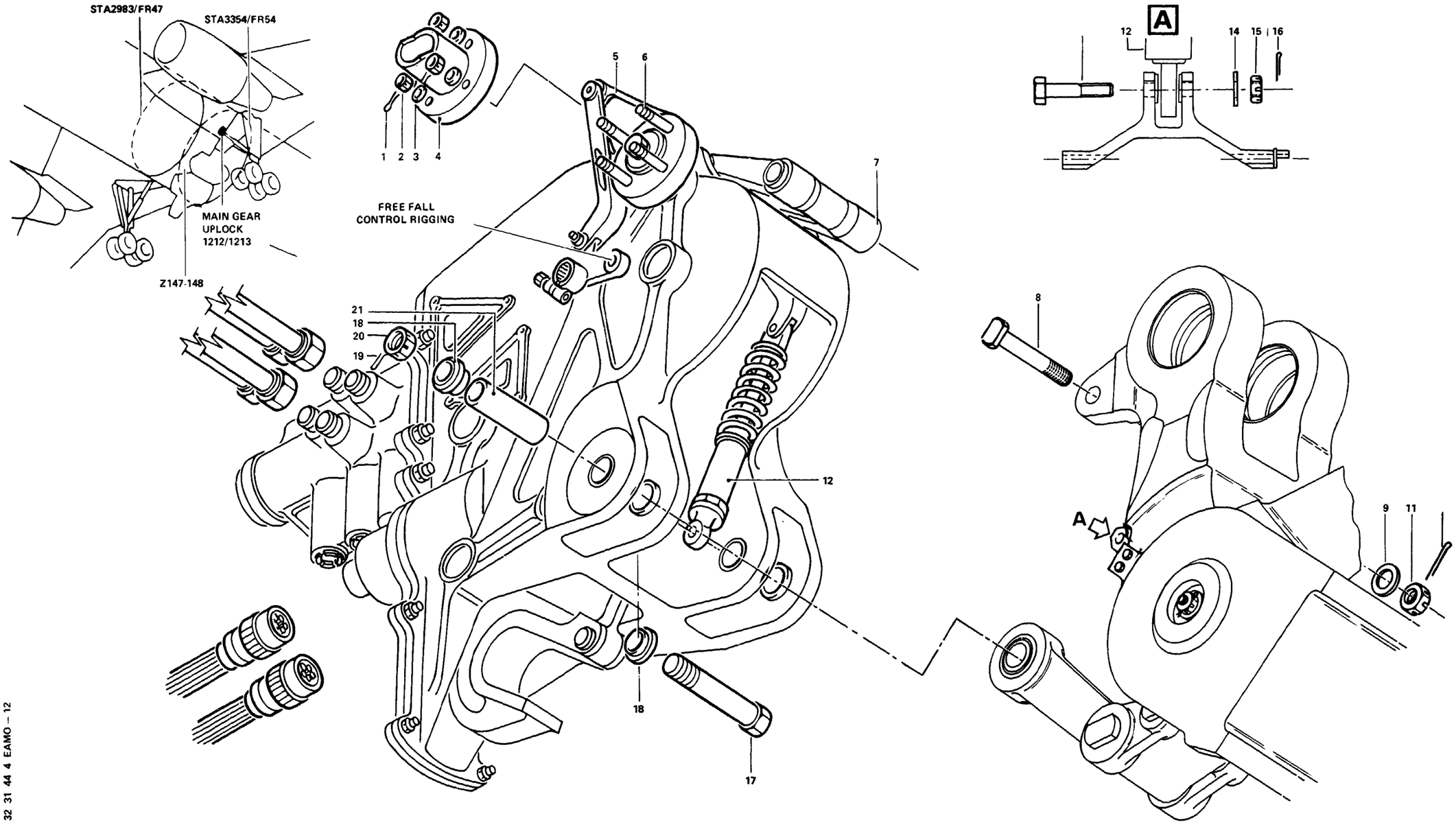
R 1 Remove cotter pin and nut (11).
2 Retain washer (9).
3 Remove bolt (8) using drift.

(f)Disconnect uplock assembly at lower attachment point to multiple clevis.
1 Remove cotter pins and nuts (20).
2 Remove bolts (17) and end shoulder-bushes (18).
3 Remove hollow pins (21).

(g)Remove uplock assembly.

(3)Preparation of Replacement Component.

NOTE : The replacement uplock assembly is filled with hydraulic fluid



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Main Gear - Uplock Assembly
Figure 401

R

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Material No. 02-002 (Ref. 20-31-00).

(a)Depreserve uplock assembly.

(b)Clean all parts to be installed with Material NO.11-002 and dry with filtered compressed air.

(c)If replacement component is supplied without hydraulic unions, salvage unions installed on removed component, clean and check those unions for correct condition and install on replacement component, using new seals.

(4)Installation

(Ref. Fig. 401)

(Ref. Fig. 402)

(a)Position uplock assembly

(b)Connect uplock assembly to lower attachment point on multiple clevis.

1 Coat hollow pins (21) with Material No.04-004

2 Install hollow pins (21), end shoulder-bushes (18) and bolts (17).

3 Install nuts (20). TORQUE nuts to between 1.35 and 1.5 m.daN (9.590 and 11.065 lbf.ft.). Safety with cotter pins.

CAUTION : SUPPORT UPLOCK ASSEMBLY

(c)Connect uplock assembly to upper attachment point on multiple clevis

1 Coat bolt (8) with Material NO.04-004 and install.

2 Install washer (9)

3 Install nut (11). TORQUE nut to between 2.7 and 3.3 m.daN (19.9 and 24.2 lbf.ft.). Safety nut with cotter pin.

(d)Connect uplock assembly to brace strut.

1 Line up bores of spring rod (12) with holes of brace strut clevis, and install bolt (13).

2 Install washer (14).

3 Install nut (15). TORQUE nut to 0.6 (+ 0.1 + 0) m.daN (53.082 lbf.in. to 61.929 lbf.in.). Safety nut with cotter pin.

NOTE : It is not necessary to strictly adhere to sequence of operations (2), (3) and (4). The spring rod is pre-set for Removal/Installation with aircraft either on wheels or on jacks.

(e)Connect Free Fall control mechanism to uplock assembly.

1 Between First Officer's and Third Occupant's seats
- make certain that Free Fall extension control handle is in Normal position.

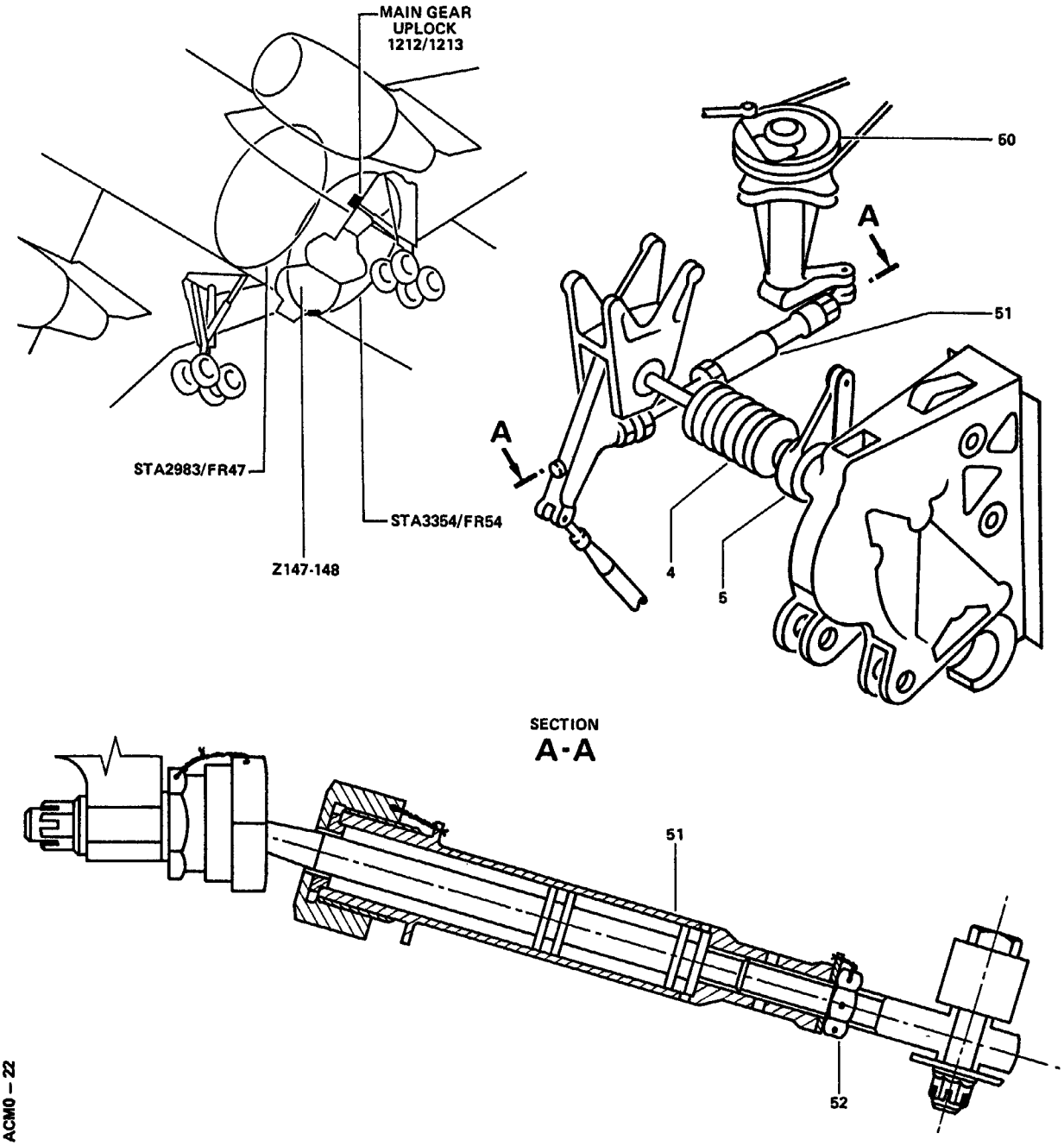
2 In zone 241, remove floor panels LF, NF and PF.

3 Install rigging pin 98A27901011000 on control pulley (50).

4 Make certain that rigging pin 98A32201004000 is installed in uplock assembly.

5 Connect universal joint (4) to bellcrank (5).
- Insert bolts (6) into holes of universal joint.
Install washers (3) install nuts (2). Safety with cotter pins.

6 Make certain that telescopic rod (51) is fully compressed, if not :
- Release and back off locknut (52) on telescopic rod body (51)
- Screw out eye-end fitting by rotating the telescopic rod body until the body comes against the piston rod.
- Tighten the eye-end fitting by rotating telescopic rod body by one turn.



Main Gear Uplock Assembly - Free Fall Mechanical Release Control
Figure 402

- Tighten and safety locknut (52).

7 Remove rigging pins from uplock assembly and from control pulley.

8 In zone 241, install floor panels.

(f)Remove caps and connect electrical connectors.

(g)Remove caps and connect hydraulic lines.

(5)Tests

R (a)Perform landing gear Free Fall extension functional test (Ref. 32-33-00, P. Block 501).
The uplock assembly must be checked for external leakage during initial pressurization and again upon test close-up.

R (b)Perform landing gear Normal extension and retraction functional test (Ref. 32-31-00, P. Block 501).

(6)Close-up

(a)Remove hydraulic fluid container.

(b)Make certain that working area is clean and clear of tools and miscellaneous items of equipment.

(c)Pressurize hydraulic reservoirs (Ref. 29-14-00, P. Block 301).

(d)Remove safety clips and tags and close :
- circuit breakers 3GB, 83GB.
WARNING : MAKE CERTAIN THAT DOOR TRAVEL RANGES ARE CLEAR

(e)Close landing gear doors (Ref. 32-12-11, P. Block 301).

(f)Top up hydraulic reservoirs if necessary (Ref. 12-12-29, P. Block 1).

(g)Remove warning notices.

(h)Close access doors, remove access platform and safety barriers.

(i)Remove all ground handling and maintenance equipment, standard and special tools, together with ground power and replenishing equipment, all access equipment and miscellaneous items.

2. Uplock Assembly Components

A. Reason for the Job
(1)Removal/Installation of support plate assembly.
(2)Removal/Installation of sequence valve

B. Equipment and Materials

ITEM	DESIGNATION
(1)	Access Platforms 2m, 2.60m (6ft. 7in., 8ft. 7in.).
(2)	Rigging Pin, Dia. 8mm (0.314in.)
(3)	Shim, Thickness 9mm (0.359 in.)
(4)	Hydraulic Fluid Container
(5)	Blanking PLugs.
(6)Material No. 05-027	Special Materials (Ref. 20-31-00).
(7)Material No. 09-001	Sealants (Ref. 20-31-00)
(8)Material No. 11-002	Cleaning Agents (Ref. 20-31-00).
(9)Material No. 08-033	Bonding and Adhesive Compounds (Ref. 20-31-00)
Referenced Procedures	
- 07-11-00, P. Block 1	Jacking for Aircraft Maintenance Operations
- 12-12-29, P. Block 1	Hydraulics
- 29-10-00, P. Block 301	Main Hydraulic Power - Pressurization/Depressurization
- 29-14-00, P. Block 301	Hydraulic Reservoir Pressurizing System
- 32-12-11, P. Block 301	Main Gear Main Door - (Ground Door(s) Opening)
- 32-31-00, P. Block 501	Normal Extension and Retraction

C. Procedure
(1)Job set-up
(a)On panel 4VU
- make certain that landing gear Normal control lever is in DOWN position and prohibit its operation by displaying a warning notice.

(b)Between First Officer's and Third Occupant's seats
- make certain that Free Fall extension control handle is in Normal position.

(c)Position access platform
(d)Position safety barriers prohibiting access to door travel ranges.
WARNING : MAKE CERTAIN THAT DOOR TRAVEL RANGES ARE CLEAR.
(e)Open main landing gear doors (Ref. 32-12-11, P. Block 301).
(f)Depressurize Green hydraulic reservoir (Ref. 29-14-00, P. Block 301) and prohibit its pressurization by displaying a warning notice :
- on panel 429VU to prohibit APU starting
- on reservoir pressurization connector

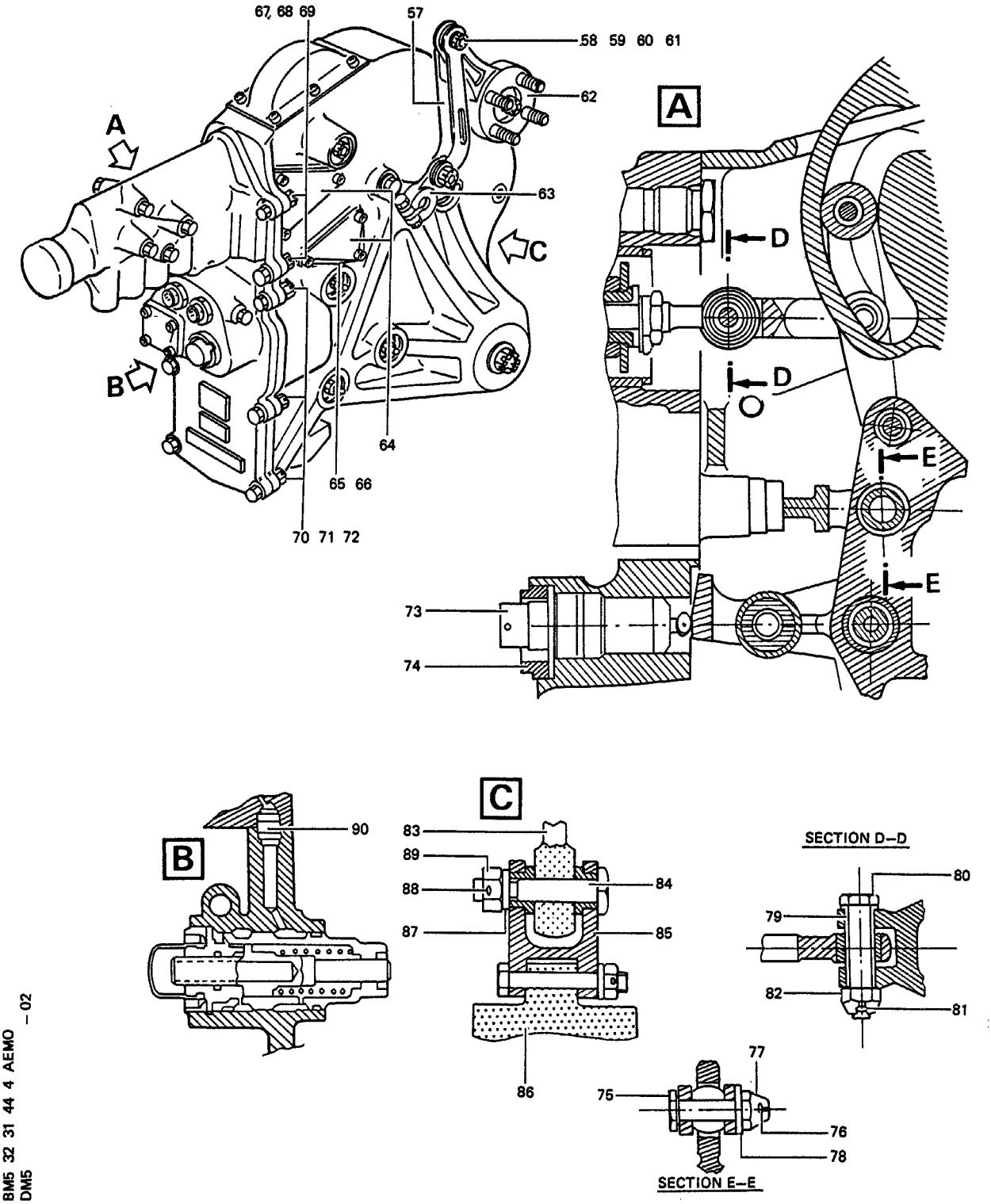
(g)Depressurize Green hydraulic system (Ref. 29-10-00, P. Block 301) and prohibit its pressurization by displaying warning notice :
- on Green hydraulic system ground connectors
- on panel 427VU to prohibit operation of Green electric pumps (ELEC PUMPS pushbutton switch)

(h)Jack up aircraft wheels clear of ground (Ref. 07-11-00, P. Block 1)

(j)Position hydraulic fluid container
(k)Open, safety and tag the following circuit breakers :

PANEL	SERVICE	IDENT.	LOCATION
133VU	HYDRAULIC/L/G PROX DET/& RELAYS SYS1/GEAR ON &/CTR PNL/POS IND	3GB	332/U53
133VU	HYDRAULIC/L/G PROX DET/& RELAYS SYS2/GEAR DOWN &/OVHD PNL/POS IND	83GB	331/V51

(2)Removal
(Ref. Fig. 403)
Note : - Using a spatula remove rubber coating taking care not to damage surface protective finish.
- Remove unions from components to be replaced.
(a)Remove support plate assembly.
1 Disconnect hydraulic lines and microswitch (73) connectors.
- Blank open line ends and orifices and cap electrical connectors
2 Remove cotter pins and remove nuts (71) bolts (72) while holding support plate assembly against uplock box.
3 Slide support plate on uplock box to free spool (90) then extract assembly.
4 Remove spool from sequence valve or support plate assembly. The spool is part of the uplock box assembly.
5 Remove microswitches from support plate assembly.
- Cut and remove lockwire and remove threaded bushes (74) and withdraw microswitches. The microswitches are part of the uplock box assembly.
(b)Remove sequence valve
CAUTION : REMOVAL OF SEQUENCE VALVE REQUIRES PRIOR REMOVAL OF SUPPORT PLATE ASSEMBLY.
1 Remove support plate assembly as per paragraph 2.C.(2).(a).
2 Mark, disconnect and blank sequence valve hydraulic hoses and stow to clear immediate area. Blank orifices in sequence valve.
3 Disconnect spring rod (83) from brace strut (86) fork fitting (85).
- Remove cotter pin and nut (89) and retain washer (87) and bolt (84).
4 Remove covers (64)
- Cut and remove lockwire and remove screws (65) and washers (66).
5 Disconnect rod (57) from coupling (62)
- Remove cotter pin and remove nut (59) washer (60) and bolt (61).
6 Manually uplock hook.
7 Disconnect dash pot from uplock box linkage
- Remove cotter pin and retain nut (77), washer (78) and bolt (75) for reinstallation.
8 Disconnect sequence valve slide from uplock box linkage
- Remove cotter pin, nut (82), bolt (80) and bush (79).
9 Remove sequence valve
- Remove cotter pins, nuts (68) and bolts (69) while supporting sequence valve and remove valve.
NOTE : In the event of faulty sequence valve, note dimension X (Ref. paragraph 2.C.(4).(a)).



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Uplock Assembly Components
Figure 403

(3)Preparation of replacement component.
- Depreserve replacement components, clean with Material No. 11-002 and dry with filtered compressed air
- Replace seals on removed unions, spools, etc.
- Install unions and spools

(4)Installation

(a)Adjust sequence valve (Ref. Fig. 404)

CAUTION : ADJUSTMENT IS ONLY REQUIRED IF SEQUENCE VALVE IS REPLACED.

1 On faulty sequence valve
- Remove cap (96) bonded with loctite using a spatula.

NOTE : Hook is in uplocked position.

2 Install bolts (69) and nuts (68). TORQUE nuts (68) to between 1.8 and 2.1 m.daN (13.27 and 15.48 lbf.ft).

3 Connect sequence valve slide to uplock box linkage.
- Align bores and install bush (79), bolt (80) and nut (82). TORQUE nut (82) to between 0.75 and 0.9 m.daN (5.53 and 6.63 lbf.ft) and safety with cotter pin (81).

4 Connect dash pot to uplock box linkage.
- Align bores and install bolt (75), washer (78) and nut (77). TORQUE nut (77) to between 0.75 and 0.9 m.daN (5.53 and 6.63 lbf.ft) and safety with cotter pin (76).

5 Release uplock hook by actuating bellcrank (63).

6 Connect spring rod (83) to brace strut (86) fork fitting (85).
- Align bores and install bolt (84), washer (87) and nut (89). TORQUE nut (89) to between 0.8 and 1.0 m.daN (5.90 and 7.37 lbf.ft.) and safety with cotter pin (88).

7 Check that dimension Y is between 8.95 and 9.05 mm (0.352 and 0.356 in)

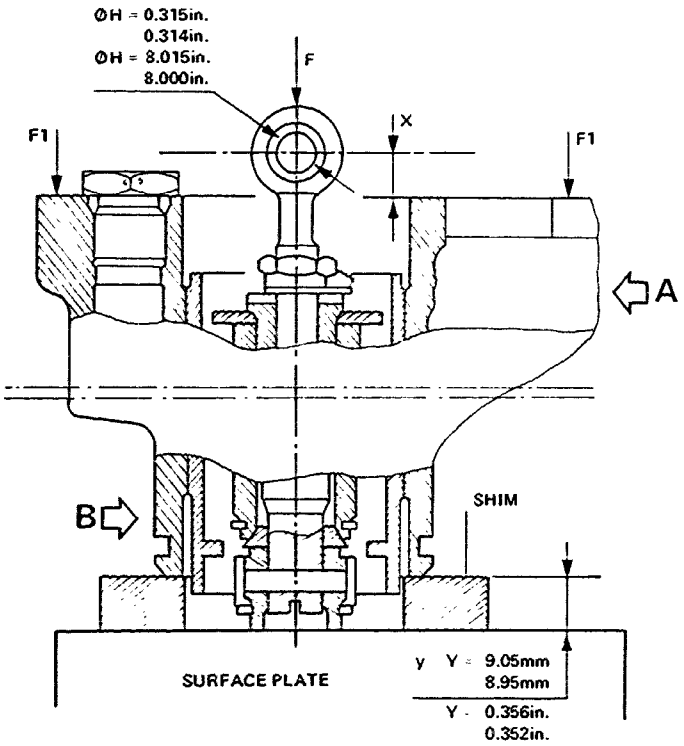
If dimension Y is out of tolerance :
- Cut lockwire and remove from nut (97) and body (95).
- Clean body (95) with Mat. No. 11-002 and dry with filtered compressed air.
- Position sequence valve as shown in the figure (Ref. Fig. 404)
- Make certain that :
- Body (95) bears on shim as per load F1.
- End of slide valve bears on surface plate as per load F.
- Install rigging pin in bore H and measure and record dimension X.

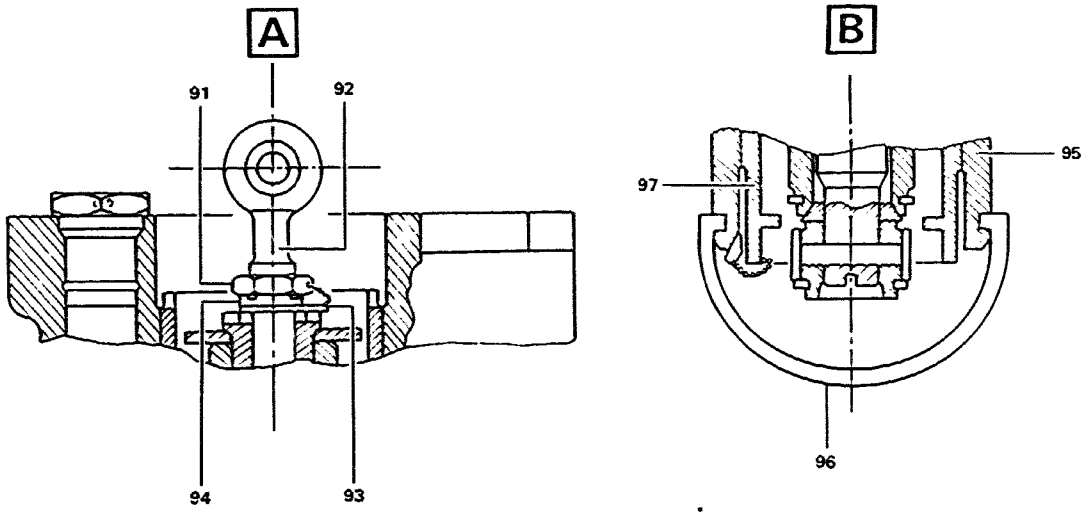
8 On new sequence valve
- Position new sequence valve on surface plate and shim as for faulty sequence valve and screw in or out rod (92) to obtain value X previously noted.
- Position lockwasher (93) tabs in slide valve slots, install washer (94), prevent rotation of rod (92) and install nut (91) ; TORQUE nut (91) to between 0.55 and 0.7 m.daN (4.05 and 5.16 lbf.ft.).
- Check dimension X. If necessary repeat adjustment procedure above.
- Safety nut (91) and lockwasher (93) together with lockwire.

(b)Install sequence valve

1 Adjust sequence valve as per paragraph 2.C.(4).(a).

2 Position sequence valve on uplock box and perform sequence valve removal operations as per paragraph 2.C(2).(b).





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Sequence Valve Adjustment
Figure 404

- Position sequence valve as per paragraph 2.C.(4).(a). (Ref. Fig. 404)
- Note dimension X, then screw in or out rod (92) by a value equal to the difference between the dimension measured on the aircraft and dimension Y (one turn of rod equals 1.25 mm (0.049 in.)).
- Position lockwasher (93) tabs in slide valve slots, install washer (94), prevent rotation of rod (92) and install nut (91); TORQUE nut (91) to between 0.55 and 0.7 m.daN (4.05 and 5.16 lbf.ft).
- Safety nut (91) to lockwasher (93) with lockwire.
- Install sequence valve (Ref. paragraph 2.C.(4).(b)).

3 Install support plate assembly and microswitches (Ref. paragraph 2.C.(4).(C).

4 Connect hydraulic lines and microswitch electrical connectors as per marking made during removal.

5 Connect rod (57) to coupling (62) with bolt (61), washer (60) and nut (59). TORQUE nut (59) to between 0.8 and 1.0 m.daN (5.90 and 7.37 lbf.ft) and safety with cotter pin (58).

(c)Install support plate assembly.

NOTE : Sequence valve shall be installed on uplock box prior to installation of support plate assembly.

1 Install spool (90) on sequence valve

2 Position support plate assembly on uplock box and slide to engage spool (90) in corresponding orifice.

3 Install bolts (72) and nuts (71). TORQUE nuts to between 1.8 and 2.1 m.daN (13.27 and 15.48 lbf.ft).

4 Install microswitches (73) and threaded bushes (74). TORQUE bushes (74) to between 2.5 and 3.0 m.daN (18.43 and 22.12 lbf.ft) and safety with lockwire.

5 Connect hydraulic hoses and microswitch electrical connectors. Clamp against structure the hoses which may have been removed.

6 Remove safety clips, tags and close circuit breakers 3GB and 83GB.

7 Remove hydraulic fluid container

8 Make certain that working area is clean and clear of tools and miscellaneous items of equipment.

WARNING : MAKE CERTAIN THAT DOOR TRAVEL RANGES ARE CLEAR.

9 Close landing gear doors (Ref. 32-12-11, P. Block 301).

(5)Tests

NOTE : During the following tests, carefully check uplock assembly for external leakage during initial pressurization and upon completion of tests.

(a)Following removal/installation of support plate assembly carry out
- a landing gear normal retraction and extension functional test (Ref. 32-31-00, P. Block 501).

(b)After removal of a sequence valve, perform landing gear Normal extension and retraction functional test (Ref. 32-31-00, P. Block 501). Uplock assembly components must be checked thoroughly for external leakage during initial pressurization and again upon test close-up.

(6)Close-up

WARNING : MAKE CERTAIN THAT DOOR TRAVEL RANGES ARE CLEAR.

(a)Open main gear doors (Ref. 32-12-11, P. Block 301).

(b)Depressurize Green hydraulic system (Ref. 29-10-00, P. Block 301) and

prohibit its pressurization by displaying a warning notice :
- on panel 429VU to prohibit APU starting
- on reservoir pressurization ground connectors

(c)Depressurize Green hydraulic system (Ref. 29-10-00, P. Block 301) and prohibit its pressurization by displaying a warning notice :
- on Green hydraulic system ground connectors
- on panel 427VU to prohibit operation of Green electric pumps (ELEC PUMPS pushbutton switch)

(d)After tests following installation of support plate assembly :
- Check torque setting of nuts (71) and safety with cotter pins (70).

(e)After tests following installation of sequence valve :
- Install covers (64), washers (66) and screws (65). TORQUE screws (65) to between 0.15 and 0.16 m.daN (1.10 and 1.18 lbf.ft.) and safety with lockwire.
- Safety nut (97) to body (95) with lockwire.
- Install cap (96) as follows :
- on body (95) rub down surfaces to be bonded with abrasive cloth. (three equidistant zones on outer face of flange - length 25 mm (0.984 in) approx.).
- Clean surfaces to be bonded with a cloth soaked in methylated spirit (body (95) and cap (96)).
- Turn up edges of cap (96), apply a thin film of loctite IS150 adhesive on the three zones on body (95) then fold down edges of cap (96) within 15 seconds.
- Check torque setting of nuts (68) and safety with cotter pins (67).
- Protect hardware, contact line of newly installed components and edges of covers where applicable with liquid rubber sealant Material N°. 09-001.
- protective covers
- caps
- hydraulic unions
- connectors

Coat with adhesive tape and damp-proof newly installed components with Material No. 05-027 using a brush. Remove adhesive tape.

(f)Make certain that working area is clean and clear of tools and miscellaneous items of equipment.

(g)Pressurize hydraulic reservoirs (Ref. 29-14-00, P. Block 301).
WARNING : MAKE CERTAIN THAT DOOR TRAVEL RANGES ARE CLEAR

(h)Close landing gear doors (Ref. 32-12-11, P. Block 301).

(j)If necessary top up hydraulic reservoirs (Ref. 12-12-29, P. Block 1).

(k)De-energize the aircraft electrical network and disconnect electrical ground power unit (Ref. 24-41-00, P. Block 301).

(l)Remove warning notices

(m)Close access doors, remove platforms and safety barriers.

(n)Remove all ground handling and maintenance equipment, standard and special tools, together with ground power and replenishing equipment, all access equipment and miscellaneous items.

WARNING : CHECK THAT THE LANDING GEAR GROUND SAFETIES INCLUDING WHEEL CHOCKS ARE IN POSITION.
BEFORE APPLYING OR RELIEVING HYDRAULIC SYSTEM PRESSURE, MAKE CERTAIN THAT THE TRAVEL RANGES OF THE CONTROL SURFACES ARE CLEAR.
BEFORE PRESSURIZING HYDRAULIC SYSTEMS, CHECK THAT ALL CONTROLS ARE SET TO CORRESPOND WITH THE ACTUAL POSITION OF THE SERVICES THEY OPERATE.
BEFORE POWER IS SUPPLIED TO THE AIRCRAFT MAKE CERTAIN THAT ELECTRICAL CIRCUITS UPON WHICH WORK IS IN PROGRESS ARE ISOLATED.
BEFORE PRESSURIZING HYDRAULIC SYSTEMS MAKE CERTAIN THAT HYDRAULIC SYSTEM UNDER MAINTENANCE HAS BEEN ISOLATED.

1. Main Gear Actuating Cylinder

A. Equipment and Materials

	ITEM	DESIGNATION
	(1)	Hand Pump
	(2)98A32101502000	Hoisting - Equipment, MLG Actuating Cylinder
	(3)	Minilift
	(4)H21901	Grip and Lift Device
	(5)H46996	Installation Cone
	(6)98A32104171000	Extractor
	(7)98A32104172000	Bullet
R	(8)Material No. 11-002	Cleaning Agents (Ref. 20-31-00)
R	(9)Material No. 04-004	Common Greases (Ref. 20-31-00)
R	10)Material No. 04-022	Common Greases (Ref. 20-31-00)
R	11)Material No. 09-001	Sealants (Ref. 20-31-00)
R	12)Material No. 09-039	Sealants (Ref. 20-31-00)
	Referenced Procedures	
	- 12-12-29, P. Block 1	Hydraulics
	- 12-22-32, P. Block 1	Landing Gear Lubrication
	- 29-10-00, P. Block 301	Main Hydraulic Power - Pressurization/Depressurization
	- 29-14-00, P. Block 301	Hydraulic Reservoir Pressurizing System
	- 32-12-11, P. Block 301	Main Gear Main Door - (Ground Door(s) Opening)
	- 32-31-00, P. Block 501	Normal Extension and Retraction

B. Procedure

(1)Job Set-Up

(a)On panel 4VU

- make certain that landing gear control lever is in **DOWN** position and prohibit its operation by displaying a warning notice.

(b)Between First Officer's and Third Occupant's seats

- make certain that landing gear Free Fall extension control handle is in Normal position.

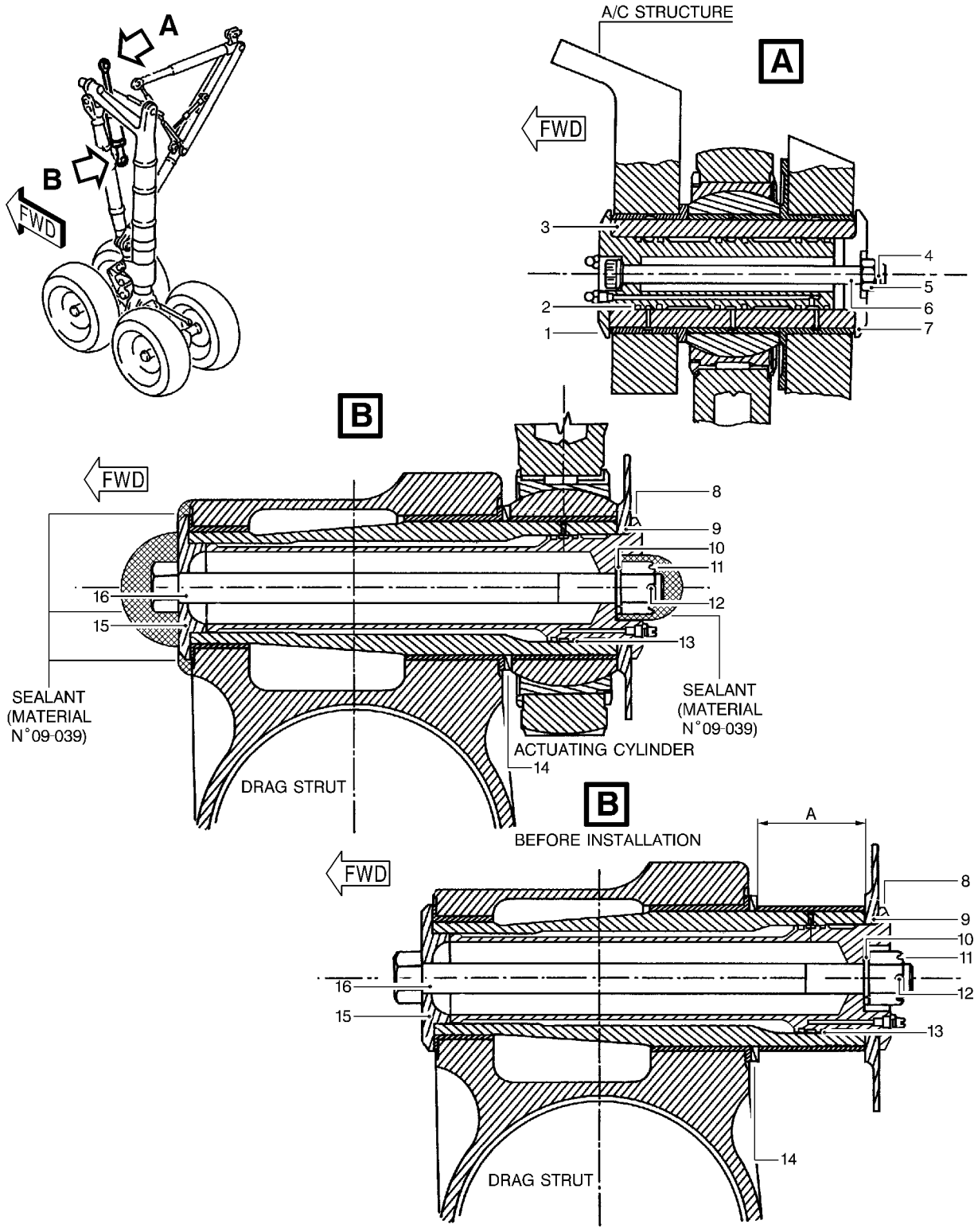
(c)Position access platform.

(d)Position protective barriers prohibiting access to gear door travel

ranges.
WARNING : MAKE CERTAIN THAT THE DOOR TRAVEL RANGES ARE CLEAR.
(e)Open main gear door corresponding to the main gear actuating cylinder assembly to be removed (Ref. 32-12-11, P. Block 301).
WARNING : WHEN DOORS ARE OPEN MAKE CERTAIN THAT SAFETY COLLARS ARE POSITIONED ON DOOR ACTUATING CYLINDERS.
(f)Depressurize Green and hydraulic reservoirs (Ref. 29-14-00, P. Block 301), and prohibit their pressurization by displaying a warning notice :
- on panel 429VU to prohibit APU starting
- on reservoir pressurization connectors.
(g)Depressurize Green hydraulic system (Ref. 29-10-00, P. Block 301) and prohibit its pressurization by displaying a warning notice :
- on Green system ground connectors
- on panel 427VU to prohibit operation of Green electric pumps (ELEC PUMPS pushbutton switch).
(h)Position hydraulic fluid container.
(2)Removal

R (Ref. Fig. 401)

(a)Disconnect actuating cylinder hydraulic lines.
1 One after another disconnect and blank hydraulic lines and their connections on actuating cylinder.
2 Note location and orientation of actuating cylinder supply unions.
(b)Attach actuating cylinder hoisting equipment 98A32101502000 to aircraft structure and install minilift.
(c)Install grip and lift device H21901 on actuating cylinder.
NOTE : Attach grip and lift device to minilift and adjust minilift to support actuating cylinder.
(d)Disconnect cylinder from drag strut.
1 Remove sealant around the head of the bolt (16), end cap (15) and nut (11).
2 Remove cotter pin (12).
3 Remove nut (11).
4 Remove washer (10), lubrication insert (8), discard the two seals (13) and retain washer (9) for reinstallation.
5 Remove bolt (16) and retain end cap (15) for reinstallation.
6 Disengage actuating cylinder lower spherical end fitting from drag strut.
7 Retain washer (14).
(e)Disconnect actuating cylinder from structure
1 Remove cotter pin (4).
2 Remove nut (5).
3 Remove cap (7) and bolt (6).
4 Remove lubrication insert (1) and discard six seals (2).
5 Remove hollow shaft (3).
6 Disconnect actuating cylinder rod from aircraft structure
(f)Temporarily install on structure and drag strut all previously removed attaching parts.



Main Landing Gear Actuating Cylinder Attach Points
Figure 401

R

(3)Preparation for installation
(a)Clean and check removed parts
1 Clean all parts with white spirit and dry with filtered compressed air.
2 Check parts for correct condition.
- Traces of oxidation, scaling or scratches on chromed surfaces (bolts).
- Traces of impact
NOTE : Systematically replace seals (2) and (13).
- Check lubricators for correct condition
3 Replace all damaged parts.
R 4 Apply a light coat of Grease Material No. 04-004 or Material
R No. 04-022 on bolts to facilitate installation.
R NOTE : Do not mix Material No. 04-004 with Material No. 04-022.
R You can use Material No. 04-022 as an alternative to
R Material No. 04-004. Clean and degrease the parts before you
R use Material No. 04-022.
(b)General instructions for replacement of an actuating cylinder.
1 Depreserve replacement actuating cylinder and clean with Cleaning Agent (Material No. 11-002) and dry with filtered compressed air.
R 2 Lightly lubricate bolts with Grease Material No. 04-004 or
R Material No. 04-022 to facilitate installation.
R NOTE : Do not mix Material No. 04-004 with Material No. 04-022.
R You can use Material No. 04-022 as an alternative to
R Material No. 04-004. Clean and degrease the parts before you
R use Material No. 04-022.
3 Lightly smear cylinder rod with aircraft system hydraulic fluid and hydraulically actuate actuating cylinder (low speed) to free packing seals which may have stuck.
4 After this operation, extend actuating cylinder (extension configuration).
(c)Preparation of replacement actuating cylinder.
1 Check that the two spherical bearings are in the same plane.
2 Extend actuating cylinder using hamp pump so as to obtain center-to-center dimension of 1479.6 mm (58.25 in.).
(4)Installation
(a)Secure grip and lift device H21901 on actuating cylinder and hoist assembly for attachment to structure.
NOTE : Make absolutely certain that hose assemblies are positioned inboard.
(b)Connect actuating cylinder to aircraft structure
1 Align rod end fitting and structure fork fitting bores.
2 Smear hollow shaft (3) with Grease (Material No. 04-022).
3 Install hollow shaft (3).
4 Install lubrication insert (1) with six new seals (2).
5 Install cap (7) and bolt (6).
6 Install nut (5). TORQUE nut to 1.36 ± 0.11 m. daN (120 ± 10 lbf.in.).
7 Safety nut (5) with cotter pin (4).
8 Connect hydraulic lines to connections on gear leg.
(c)Connect actuating cylinder to drag strut.
1 Before installation, check dimension "A" :

- install washer (14) or drag strut,
- install washer (9) and lubrication insert (8) with two new seals (13),
- install end cap (15), bolt (16) and washer (10),

NOTE : Make sure that the tenons of lubrication insert (8) are correctly engaged in the notches of the end cap (15).

- install nut (11) and TORQUE to between 12.5 and 16.5 m.daN (92.20 and 129.77 lbf.ft.).
- check that dimension "A" is between 60 and 60.3 mm (2.362 and 2.374 in.),
- remove nut (11), washer (10),
- remove lubrication insert (8) and washer (9).

2 Remove all attaching parts.
3 Position installation cone H46996 on drag strut-to-actuating cylinder hinge pin.
4 Position actuating cylinder lower spherical end fitting at its attach point on drag strut, adjusting grip and lift device H21901, adjusting screw as necessary.
5 Remove installation cone H46996
6 Install washer (9) and lubrication insert (8) fitted with two new seals (13).
7 Install end cap (15), bolt (16) and washer (10).

NOTE : Make sure that the tenons of the lubrication insert (8) are correctly engaged in the notches of the end cap (15).

8 Install nut (11) and TORQUE to between 12.5 and 16.5 m.daN (92.20 and 121.77 lbf.ft.).
9 Safety nut with cotter pin (12).
10 Apply Sealant (Material No. 09-039) to the head of the bolt (16), end cap (15) and nut (11).

(d)Remove grip and lift device H21901, actuating cylinder hoisting equipment and minilift.
(e)Apply sealant on all hardware.
(f)Perform lubrication operations (Ref. 12-22-32, P. Block 1)

(5)Tests
(a)Perform a Landing Gear Normal retraction/extension test. (Aircraft on jacks) - (Ref. 32-31-00, P. Block 501 Functional Test Para.4.).

R

(b)Check for evidence of external leakage during system pressurization and at close-up of tests.

(6)Close-Up
(a)Remove hydraulic fluid container.
(b)Make certain that working area is clean and clear of tools and miscellaneous items of equipment.
(c)Pressurize hydraulic reservoirs (Ref. 29-14-00, P. Block 301).

WARNING : MAKE CERTAIN THAT DOOR TRAVEL RANGES ARE CLEAR.

(d)Close landing gear doors (Ref. 32-12-11, P. Block 301).

(e)Replenish hydraulic reservoirs if necessary (Ref. 12-12-29, P. Block 1).
(f)Remove warning notices.
(g)Close access doors, remove access platform and safety barriers.
(h)Remove all ground handling and maintenance equipment, standard and special tools, replenishing equipment, all access equipment and miscellaneous items.

BRACE STRUT - ACTUATING CYLINDER (1208-1209)
REMOVAL/INSTALLATION

WARNING : CHECK THAT THE LANDING GEAR GROUND SAFETIES INCLUDING WHEEL CHOCKS ARE IN POSITION.
BEFORE APPLYING OR RELIEVING HYDRAULIC SYSTEM PRESSURE, MAKE CERTAIN THAT THE TRAVEL RANGES OF THE CONTROL SURFACES ARE CLEAR.
BEFORE PRESSURIZING HYDRAULIC SYSTEMS, CHECK THAT ALL CONTROLS ARE SET TO CORRESPOND WITH THE ACTUAL POSITION OF THE SERVICES THEY OPERATE.
BEFORE PRESSURIZING HYDRAULIC SYSTEMS, MAKE CERTAIN THAT HYDRAULIC SYSTEM UNDER MAINTENANCE HAS BEEN ISOLATED.
BEFORE POWER IS SUPPLIED TO THE AIRCRAFT, MAKE CERTAIN THAT ELECTRICAL CIRCUIT UPON WHICH WORK IS IN PROGRESS ARE ISOLATED.

1. Equipment and Materials

ITEM	DESIGNATION
A. H21829	Extractor
B. F47784	Guide Cone
C. C47248	Guide Cone
D. H21830	Extractor
E.	Access Platform 2.60 m (8 ft. 7 in.).
F.	Warning Notice
G.	Blanking Caps
H.	Safety Barriers
J. Material No. 04-003	Common Greases (Ref. 20-31-00)
K. Material No. 09-004	Sealants (Ref. 20-31-00)
L. Material No. 09-013A	Sealants (Ref. 20-31-00)
M. Material No. 11-002	Cleaning Agents (Ref. 20-31-00)
Referenced Procedures	
- 07-11-00, P. Block 1	Jacking for Aircraft Maintenance Operations
- 12-12-29, P. Block 1	Hydraulics
- 12-22-32, P. Block 1	Landing Gear Lubrication
- 29-14-00, P. Block 301	Hydraulic Reservoir Pressurizing System
- 32-12-11, P. Block 301	Main Gear Main Door - (Ground Door(s) Opening)
- 32-31-00, P. Block 501	Normal Extension and Retraction

2. Procedure

A. Job Set-Up
(1)On panel 4VU
- make certain that landing gear control lever is in **DOWN** position and prohibit its operation by displaying a warning notice.

(2)Between First Officer's and Third Occupant's seats
- make certain that landing gear Free Fall extension control handle is in Normal position.

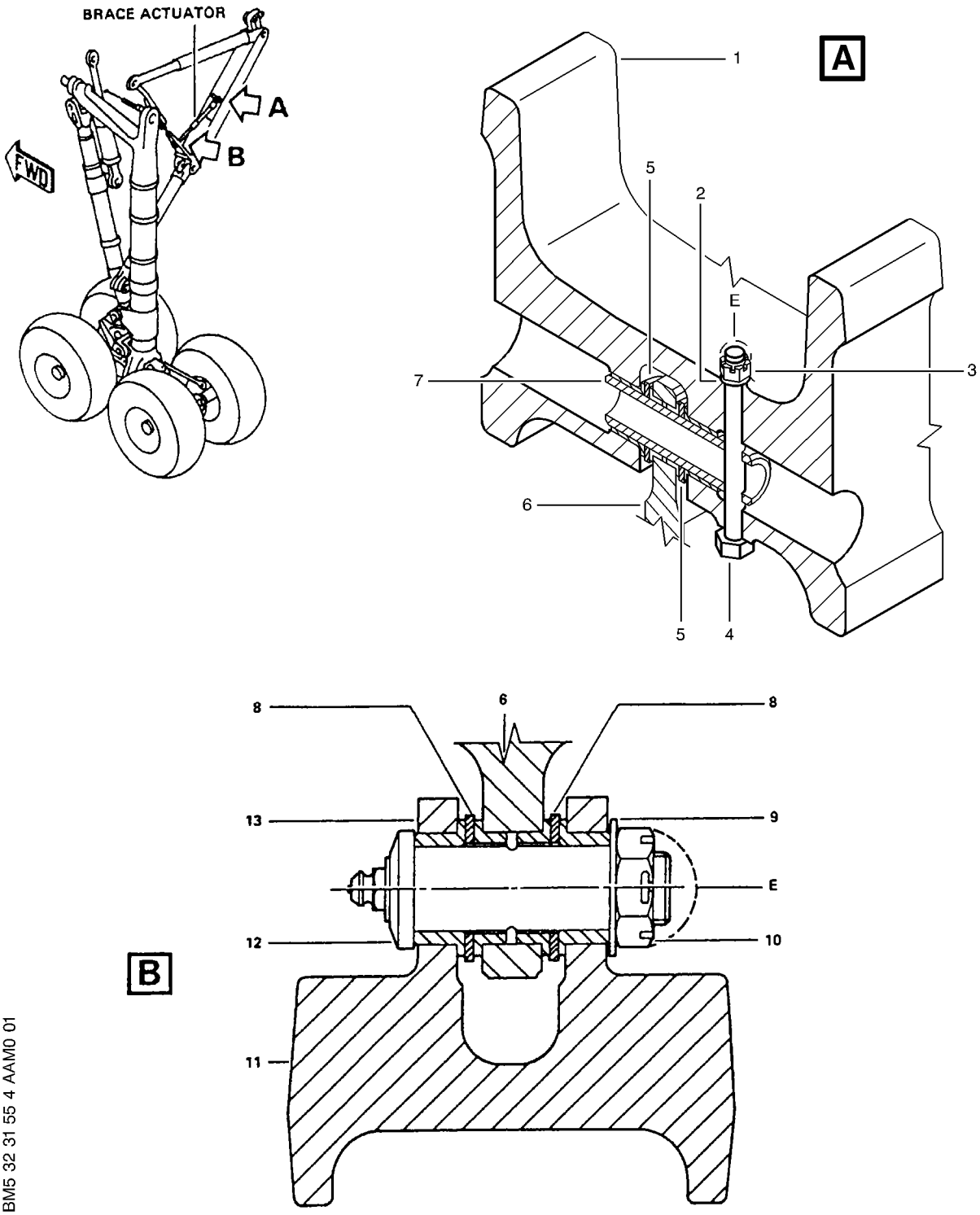
(3)Position access platform.
(4)Position safety barriers prohibiting access to main gear door travel

ranges
WARNING : MAKE CERTAIN THAT THE DOOR TRAVEL RANGES ARE CLEAR.
(5)Open main gear doors (Ref. 32-12-11, P. Block 301).
WARNING : WHEN DOORS ARE OPEN MAKE CERTAIN THAT SAFETY COLLARS ARE POSITIONED ON DOOR ACTUATING CYLINDERS.
(6)Depressurize Green hydraulic reservoir (Ref. 29-14-00, P. Block 301) and prohibit its pressurization by displaying a warning notice :
- on panel 429VU to prohibit APU starting
- on hydraulic reservoir pressurization connector
(7)Depressurize Green hydraulic system (Ref. 29-10-00, P. Block 301) and prohibit its pressurization by displaying a warning notice
- on Green hydraulic system ground connectors
- on panel 427VU to prohibit operation of Green electric pumps (ELEC PUMPS pushbutton switch).
(8)Jack up aircraft until wheels are clear of ground (Ref. 07-11-00, P. Block 1).
(9)Position hydraulic fluid container.

B. Removal
(Ref. Fig. 401)
(1)Disconnect pressure hoses at actuating cylinder connector blocks.
(a)Mark location of hoses.
(b)Blank off pressure ports and open hose ends.
(2)Disconnect actuating cylinder (6) from lock link assembly (11).
(a)Remove cotter pin and nut (10).
(b)Retain washer (9).
(c)Remove and retain washers (8) on either side of actuating cylinder (6).
(d)Remove shaft (12) using extractor H21830.
(e)Disconnect actuating cylinder (6) from lock link (11) fork end and retain washers (7).
(3)Disconnect actuating cylinder from brace strut.
(a)Remove cotter pin, nut (3) and washer (2).
(b)Remove bolt (4).
(c)Remove and retain washers (5) on either side of actuating cylinder (6).
(d)Remove shaft (7) using extractor H21829.
(e)Remove actuating cylinder (6) and washers (5).

C. Preparation of Replacement Component
(1)Depreserve replacement actuating cylinder and remove external protections.
(2)Clean fork and bores and hinge shafts using Material No. 11-002 and dry with filtered compressed air.
(3)Smear actuating cylinder sliding rod with aircraft system hydraulic fluid. Slowly actuate the sliding rod to free the seals from any possible sticking.
(4)Carefully wipe actuating cylinder clean.
(5)If replacement component is supplied without hydraulic unions etc., recover unions etc. from removed component, clean and check for correct condition, and install on replacement component with new seals.

D. Installation



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Brace Strut Actuating Cylinder - Removal/Installation
Figure 401

R

(1)Connect actuating cylinder (6) to brace strut (1).
(a)Align brace strut (1) bores with actuating cylinder (6) spherical bearing positioning the two washers (5).
(b)Install shaft (7) using guide cone F47784 so as to permit installation of bolt (4).
(c)Install bolt (4) and washer (2).
R CAUTION : MAKE CERTAIN THAT BOLT (4) IS CORRECTLY INSERTED AND
R EFFECTIVELY LOCKS SHAFT (7), TO PREVENT ANY LOSS OF THE SHAFT
R IN SERVICE DUE TO VIBRATIONS.
(d)Install nut (3) and safety with cotter pin.
(2)Connect actuating cylinder to lock link.
(a)Align lock link (11) fork end bores with actuating cylinder spherical bearing bore positioning the two washers (8).
(b)Install shaft (12) using guide cone C47248.
(c)Install washer (9).
(d)Install nut (10) and safety with cotter pin.
(3)Coat zone identified E with Material No. 09-013A.
CAUTION : MATERIAL No. 09-013A SHOULD ONLY BE APPLIED TO THE THREADED END OF BOLT AND NUT.
(4)Remove blanking caps and connect all hoses at their respective locations, correctly tightening nuts.
CAUTION : HOLD UNIONS WHILE TIGHTENING NUTS SO AS NOT TO MODIFY THE POSITION OF THE SUPPORT.

E. Tests
(1)Perform a Normal extension and retraction functional test (Ref. 32-31-00, P. Block 501).
(2)Carefully check actuating cylinder for external leakage at initial pressurization and upon completion of test.

F. Close-Up
(1)Make certain that working area is clean and clear of tools and miscellaneous items of equipment.
WARNING : MAKE CERTAIN AREA UNDER THE AIRCRAFT IS CLEAR.
(2)Lower aircraft on its wheels (Ref. 07-11-00, P. Block 1).
(3)Pressurize hydraulic reservoirs (Ref. 29-14-00, P. Block 301).
(4)Make certain that door travel ranges are clear and close landing gear doors (Ref. 32-12-11, P. Block 301).
(5)Replenish hydraulic reservoirs if necessary (Ref. 12-12-29, P. Block 1).
(6)Remove warning notices.
(7)Close access doors, remove access platform and safety barriers.
(8)Remove all ground handling and maintenance equipment, standard and special tools, together with ground power and replenishing equipment, all access equipment and miscellaneous items.

R MAIN GEAR RESTRICTOR VALVE (321228-321229) - REMOVAL/INSTALLATION

WARNING : CHECK THAT THE LANDING GEAR GROUND SAFETIES INCLUDING WHEEL CHOCKS ARE IN POSITION.
BEFORE APPLYING OR RELIEVING HYDRAULIC SYSTEM PRESSURE, MAKE CERTAIN THAT THE TRAVEL RANGES OF THE CONTROL SURFACES ARE CLEAR.
BEFORE PRESSURIZING HYDRAULIC SYSTEMS, CHECK THAT ALL CONTROLS ARE SET TO CORRESPOND WITH THE ACTUAL POSITION OF THE SERVICES THEY OPERATE.
BEFORE POWER IS SUPPLIED TO THE AIRCRAFT, MAKE CERTAIN THAT ELECTRICAL CIRCUITS UPON WHICH WORK IS IN PROGRESS ARE ISOLATED.
BEFORE PRESSURIZING HYDRAULIC SYSTEMS, MAKE CERTAIN THAT HYDRAULIC SYSTEM UNDER MAINTENANCE HAS BEEN ISOLATED.

1. Equipment and Materials

ITEM	DESIGNATION
A.	
B.	
C.	Access Platform 2.60 m (8 ft. 7 in.)
D.	Blanking Plugs
E.	Warning Notices
F.	Hydraulic Fluid Container
G.	Safety Barriers
H.	
J.	
K. Material No. 11-002	Cleaning Agents (Ref. 20-31-00)
Referenced Procedures	
- 12-12-29, P. Block 1	Hydraulics
- 20-23-12, P. Block 1	Specified Torque Values for Unions
- 29-10-00, P. Block 301	Main Hydraulic Power - Pressurization/ Depressurization
- 29-14-00, P. Block 301	Hydraulic Reservoir - Pressurizing System
- 32-12-11, P. Block 301	Main Gear Main Door - (Ground Door(s) Opening)
- 32-31-00, P. Block 501	Normal Extension and Retraction

2. Procedure

A. Job Set-Up
(1)On panel 4VU
- make certain that landing gear control lever is in **DOWN** position and prohibit its operation by displaying a warning notice.

(2)Between First Officer's and Third Occupant's seats
- make certain that landing gear Free Fall extension control handle is in Normal position.

(3)Position access platform.
(4)Position safety barriers prohibiting access to main gear door travel ranges.
WARNING : MAKE CERTAIN THAT DOOR TRAVEL RANGES ARE CLEAR.
(5)Open main gear door associated with sequence valve (Ref. 32-12-11,

P. Block 301).
WARNING : WHEN DOORS ARE OPEN MAKE CERTAIN THAT SAFETY COLLARS ARE POSITIONED ON DOOR ACTUATING CYLINDERS.
(6)Depressurize Green hydraulic system (Ref. 29-10-00, P. Block 301) and prohibit its pressurization by displaying a warning notice.
- on Green hydraulic system ground connectors
- on panel 427VU to prohibit operation of Green electric pumps (ELEC PUMPS pushbutton switch).
(7)Depressurize Green hydraulic reservoir (Ref. 29-14-00, P. Block 301) and prohibit its pressurization by displaying a warning notice.
- on panel 429VU to prohibit APU starting
- on reservoir pressurization connector.
(8)Position hydraulic fluid container.

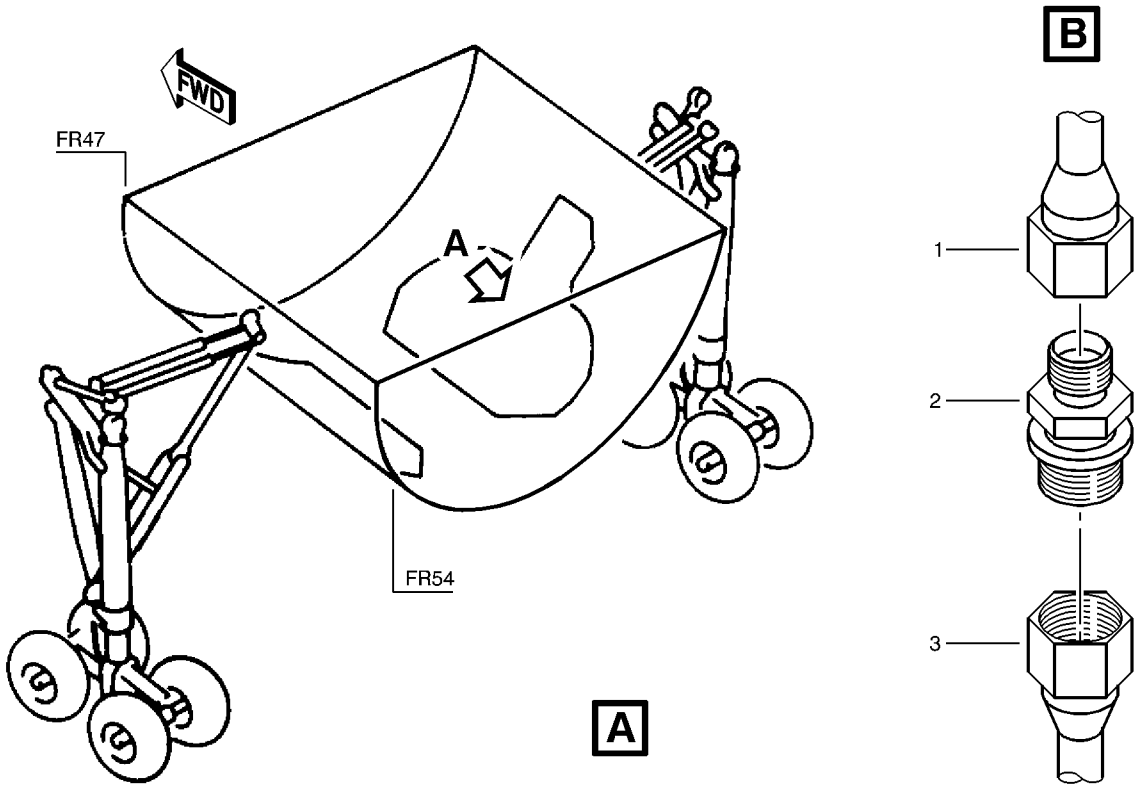
B. Removal
(Ref. Fig. 401)
(1)Disconnect hydraulic line (3) and put blanking plug on disconnected line end.
(2)Disconnect hydraulic line (1) and put blanking plug on disconnected line end.
(3)Remove restrictor valve (2).

C. Preparation of Replacement Component
(1)Depreserve sequence valve by removing external protections.
(2)Clean all components using Material No. 11-002 (Ref. 20-31-00). Dry with filtered compressed air.

D. Installation
(1)Remove blanking plug and install restrictor valve (2) on hydraulic line (1).
(2)TORQUE union (1) (Ref. 20-23-12).
(3)Remove blanking plug and connect hydraulic line (3) to restrictor valve (2).
(4)TORQUE union (3) (Ref. 20-23-12).

E. Tests
(1)Perform a landing gear Normal extension and retraction functional test (Ref. 32-31-00, P. Block 501).
Carefully check replacement component for external leakage during initial pressurization and upon completion of tests.

F. Close-Up
(1)Remove hydraulic fluid container.
(2)Make certain that working area is clean and clear of tools and miscellaneous items of equipment.
(3)Pressurize Green hydraulic reservoir (Ref. 29-14-00, P. Block 301).
WARNING : MAKE CERTAIN THAT DOOR TRAVEL RANGES ARE CLEAR.
(4)Close landing gear doors (Ref. 32-12-11, P. Block 301).
(5)Replenish hydraulic reservoir if necessary (Ref. 12-12-29, P. Block 1).
(6)Remove warning notices.
(7)Close access doors, remove access platform and safety barriers.



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Main Gear Restrictor Valve
Figure 401

(8)Remove all ground handling and maintenance equipment, standard and special tools, together with ground power and replenishing equipment, all access equipment and miscellaneous items.

PROXIMITY DETECTOR PROCESSING UNIT (54GB) - REMOVAL/INSTALLATION

1. Equipment and Materials

ITEM	DESIGNATION
A.	Circuit Breaker Safety Clips
Referenced Procedures	
- 24-41-00, P. Block 301	AC External Power Control
- 32-00-00, P. Block 501	Landing Gear

2. Procedure

A. Job Set-Up

(1)Make certain that aircraft electrical network is de-energized.

(2)Open, safety and tag the following circuit breakers :

PANEL	SERVICE	IDENT.	LOCATION
133VU	HYDRAULIC-L/G PROX DET AND RELAYS SYS2 FLT/GND	1GB	331/V52
133VU	HYDRAULIC-L/G SYS1 RELAYS AND RETRACT CTL	2GB	332/U51
133VU	HYD-L/G PROX DET/RELAYS SYS1 GEAR DN/CTR PNL POS IND	3GB	332/U53
133VU	HYD-L/G PROX DET/RELAYS SYS2 GEAR ON/OVHD PNL POS IND	83GB	331/V51
	WARNING : PRIOR TO OPENING CIRCUIT BREAKER 119GB LOCATED ON PANEL 133VU TAKE THE APPROPRIATE SAFETY PRECAUTIONS (REF. 32-00-00, P. BLOCK 501).		
133VU	HYDRAULIC LDG GEAR PROX DET AND RELAYS/ SYS1/FLT/GND	119GB	332/U52

B. Removal

NOTE : If the target is in hysteresis zone, both indicators NEAR and FAR come on simultaneously and this is not an indication of a failed test.

(Ref. Fig. 401)

(1)Unscrew knurled nuts (2) and free quick-release fasteners from processing unit (1).

(2)Gradually release processing unit (1) from mounting (3).

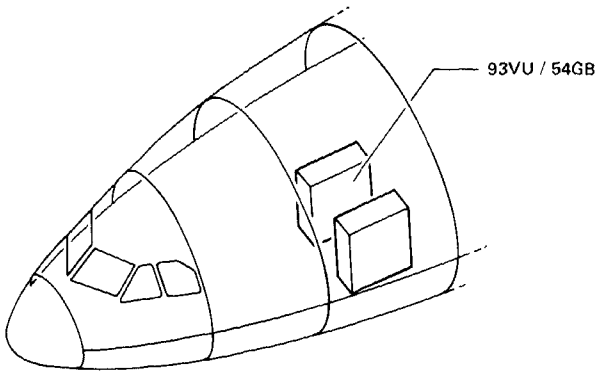
C. Preparation of Replacement Component

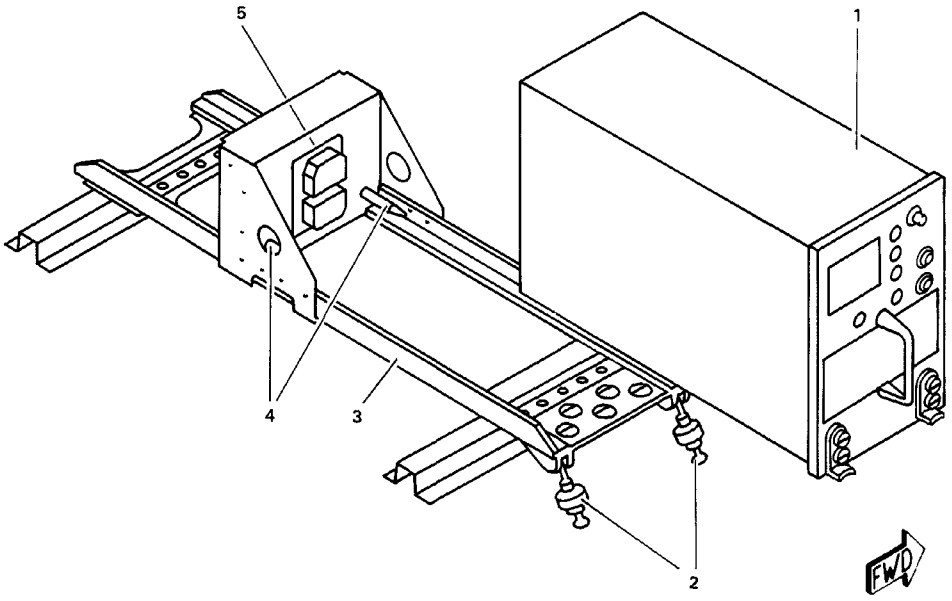
Not applicable

D. Installation

(1)Install processing unit (1) on mounting (3) by engaging it with dowel pins (4) and pushing it home until it engages with connectors (5).

R NOTE : Screw heads on the side of the processing unit can cause
R mechanical interference during processing unit installation on





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Proximity Detector Processing Unit
Figure 401

R the rack. Make sure that the processing unit connectors are fully
R engaged before you install the quick-release fasteners. If the
R processing unit connectors are not fully engaged, vibration can
R cause incorrect operation of the processing unit.

(2)Install quick-release fasteners and tighten knurled nuts (2).

(3)Remove safety clips and tags and close circuit breakers 3GB, 1GB, 2GB, 119GB and 83GB.

WARNING : AFTER CLOSING CIRCUIT BREAKER 119GB LOCATED ON PANEL 133VU PERFORM THE APPROPRIATE PROCEDURE (REF. 32-00-00, P. BLOCK 501).

E. Tests

(1)Energize the aircraft electrical network (Ref. 24-41-00, P. Block 301). Make certain that electronics racks ventilation is correct.
CONFIGURATION : Landing gear downlocked and shock absorber compressed.

(2)On proximity detector processing unit 54GB
- press TEST pushbutton switch and hold pressed throughout duration of the test.

The test first checks the test circuit for correct operation
- if test circuit is faulty, display and annunciators remain off and test is interrupted
- if test is correct, display and all annunciators come on.

The test is entirely automatic
During the test the channel numbers are displayed successively as each channel is tested accompanied by indication of the position of the associated target.

NOTE : If a fault is detected in one of the channels :
- the digital display indicates the number of the faulty channel
- SENSOR or BOX annunciator comes on to indicate the origin of the fault.

The test is then interrupted and can be continued by again pressing TEST pushbutton switch.

(3)When test is completed, release TEST pushbutton switch.

F. Close-Up

(1)De-energize the aircraft electrical network (Ref. 24-41-00, P. Block 301).

(2)Close access doors.

FREE FALL EXTENSION - DESCRIPTION AND OPERATION

1. General

(Ref. Fig. 001)

A. The sytem is controlled from the flight compartment via a control handle which actuates the following components via control cables :
(1)Free fall cutout valve performing the following functions :
(a)Shut off of Green system pressure
(b)Connection of Green system pressure to reservoir return.
(2)Three vent valves (one per landing gear) connecting the landing gear and door actuating cylinder retraction chambers to reservoir return.
(3)The mechanical release mechanisms in each landing gear and door uplock.

B. When the landing gear and door uplocks are released the doors open and gears extend under free fall action. Main gear downlocking is assisted by locking springs, nose gear downlocking by the aerodynamic loads acting on the gear.

C. Indicating (Ref. 32-61)

2. Component Location

(Ref. Fig. 002, 003, 004)

FIN	FUNCTIONAL DESIGNATION	PANEL	ZONE	ACCESS DOOR	ATA REF.
1224	VENT VALVE-MLG, L		147		32-33-15
1225	VENT VALVE-MLG, R		148		32-33-15
1235	CUTOUT VALVE-L/G FREE FALL		148		32-33-12
1260	VENT VALVE-NLG		124		32-33-14
	CONTROL BOX-FREE FALL EXTENSION		121		
	REGULATOR-CABLE TENSION				32-33-25
	CABLES-FREE FALL EXTENSION CONTROL				32-33-26
	TELESCOPIC ROD-GEAR, L		147	734	
	TELESCOPIC ROD-GEAR, R		148	744	
	QUADRANT-NOSE GEAR CONTROL		121		
	LINKAGE-NOSE GEAR UPLOCK		124		
	LINKAGE-NOSE GEAR DOOR UPLOCK, L		123		
	LINKAGE-NOSE GEAR DOOR UPLOCK, R		124		
	LINKAGE-MAIN GEAR UPLOCK, L		147		
	LINKAGE-MAIN GEAR UPLOCK, R		148		
	LINKAGE-MAIN GEAR DOOR UPLOCK, L		147		
	LINKAGE-MAIN GEAR DOOR UPLOCK, R		148		

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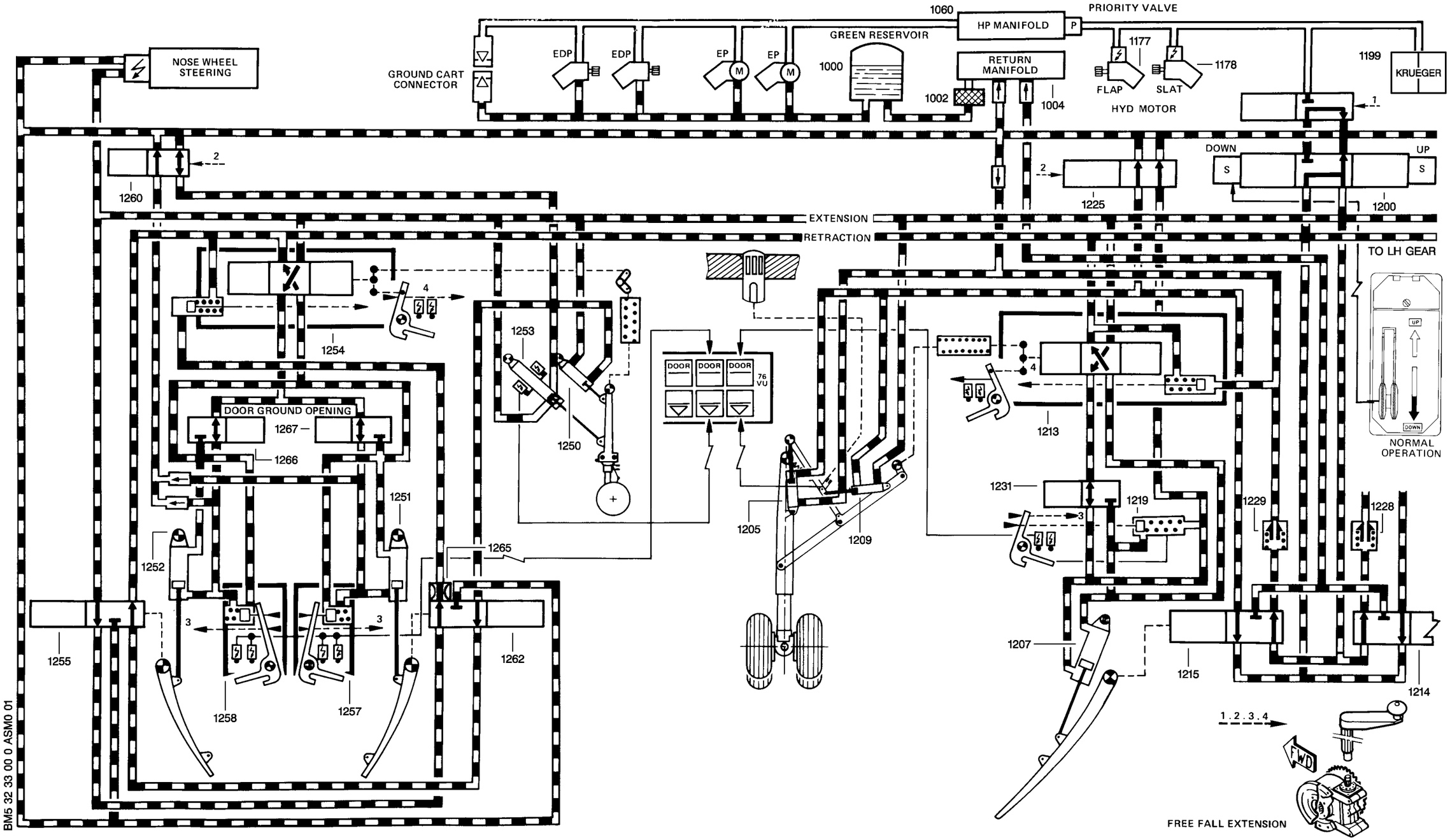

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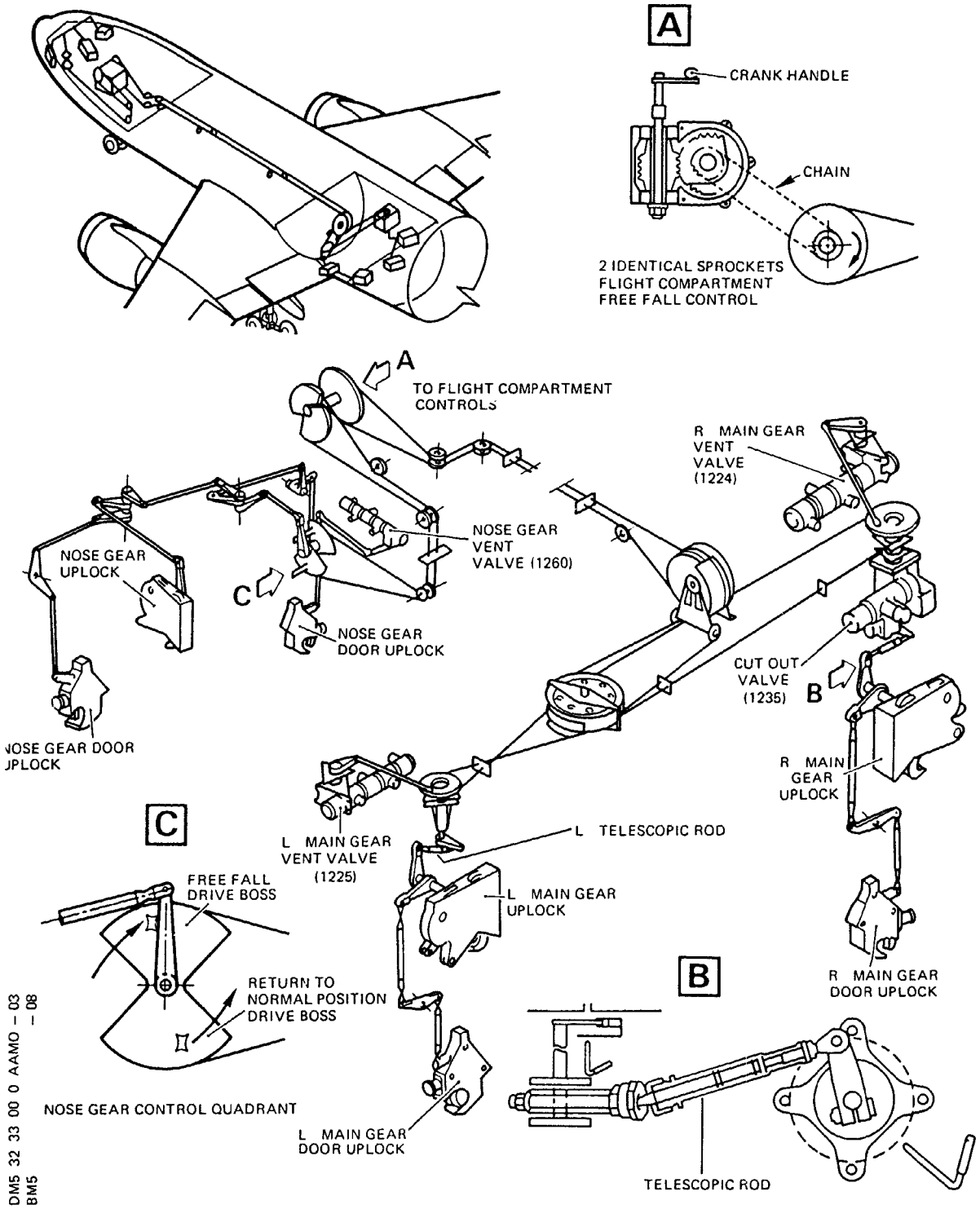
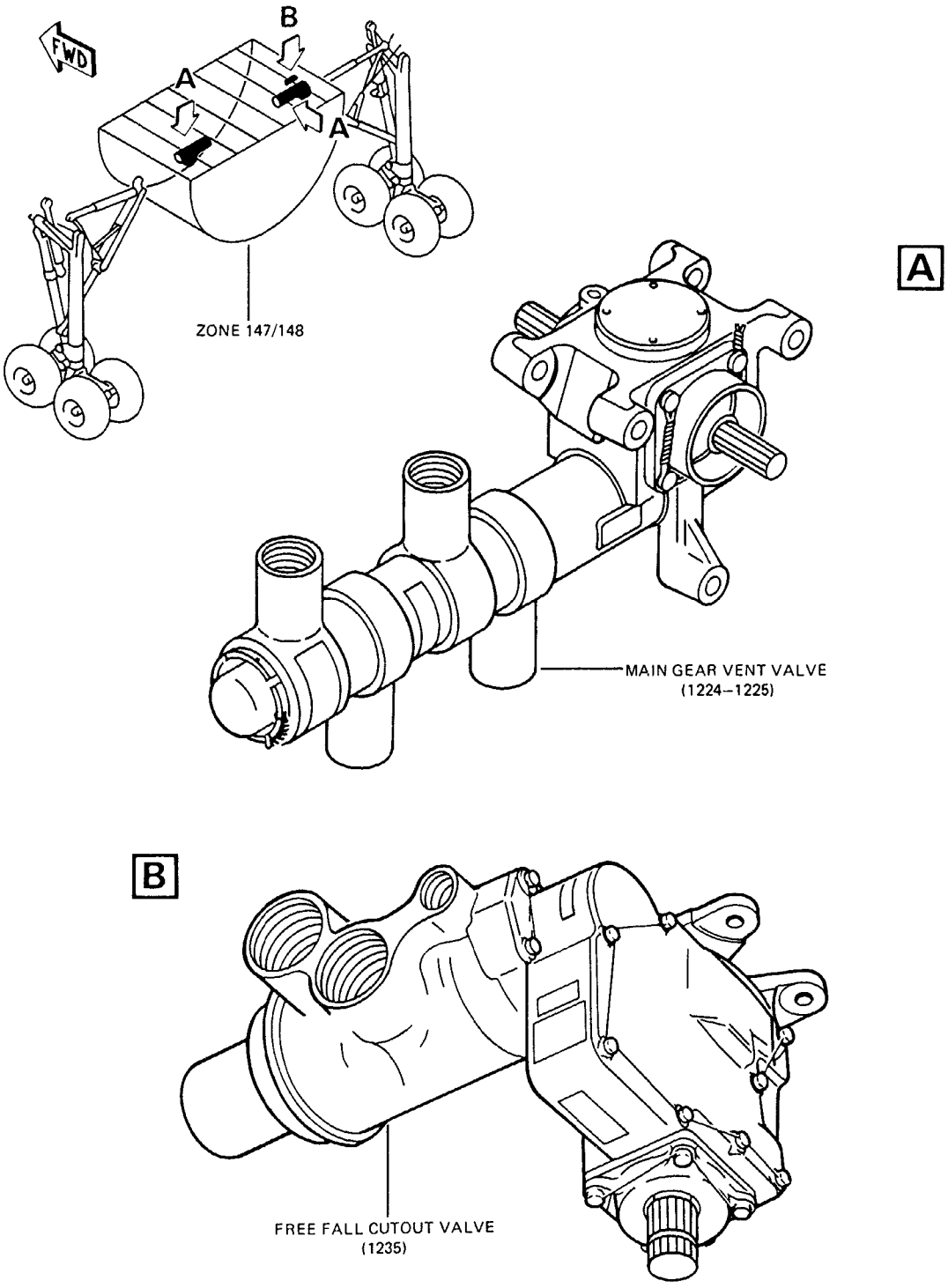
Free Fall Extension - Schematic
Figure 001

R



Free Fall Extension - Operating Mechanism
Figure 002



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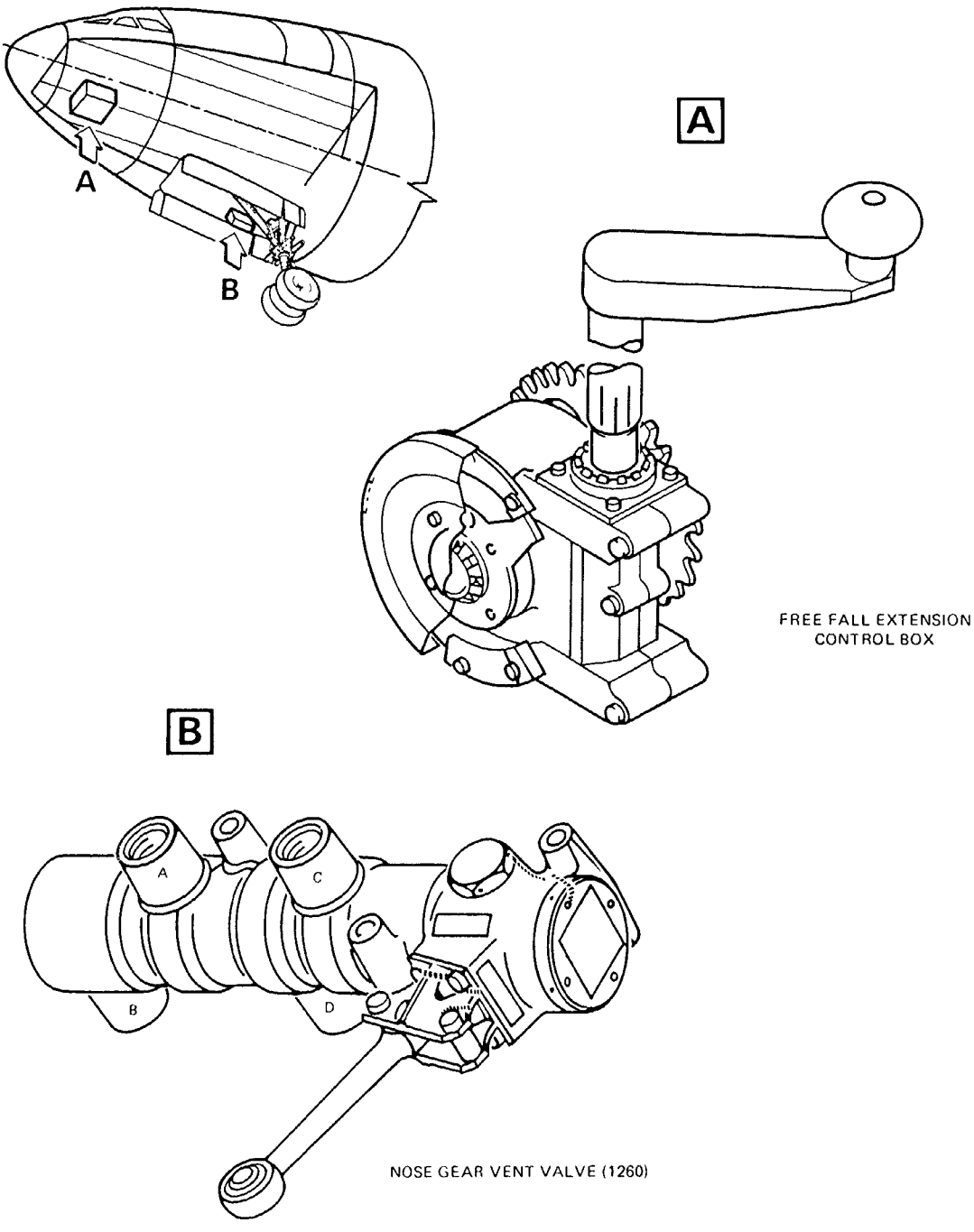
Free Fall Extension Components - Zones 147/148
Figure 003



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Free Fall Extension Components - Zones 121/212
Figure 004

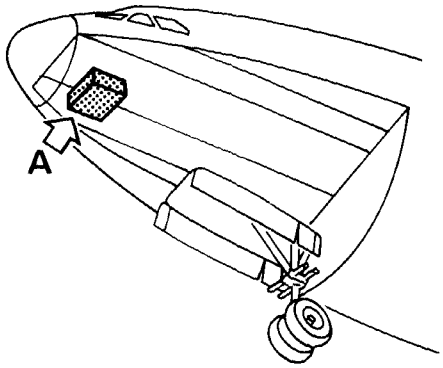
3. Component Description (Ref. Fig. 005)

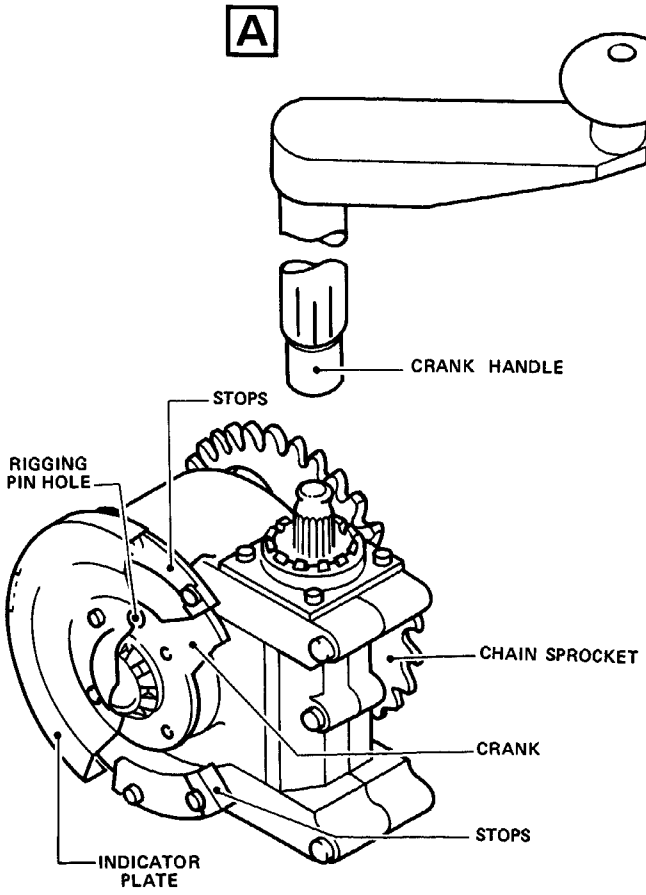
A. Flight Compartment Control and Transmission
The control handle is stowed in the flight compartment on the right F/O console
With control handle installed on the Free Fall control box splined shaft, turning the handle controls the following sequence of events :

Event	Number of turns
(1)Shut off of high pressure supply	7
(2)Connection of gear and door actuating cylinder retraction chambers to reservoir return	14
R (3)MLG door uplock release	14 to 16
R (4)NLG door uplock release	16 to 18
R (5)MLG uplock release	17 to 19
R (6)NLG uplock release	18 to 20
R (7)Mechanical stop	20.5

B. Free Fall Extension Cutout Valve
(1)Description (Ref. Fig. 006, 007)
(a)The cutout valve is located on the hydraulics compartment roof. During Normal operation, Green pressure passes through the valve to the landing gear systems. The function of the valve is to shut off this pressure when the landing gear is extended in Free Fall mode.
(b)Shut off of the Green system pressure is achieved by a slide valve controlled, via a cam and input shaft, by the Free Fall extension control mechanism.
(c)Shut off of the landing gear and door supply lines and connection to reservoir return is achieved as soon as movement of the Free Fall extension control is initated. The cam then enables rotation of the shaft which also serves to transmit the mechanical release torque to RH door and gear uplocks without modifying the position of the slide valve.
(d)The system is restored to Normal configuration when the mechanical control is returned to its initial position.
(e)In the event of slide valve jamming, the input lever shears to enable door and gear uplock release.
(2)Characteristics

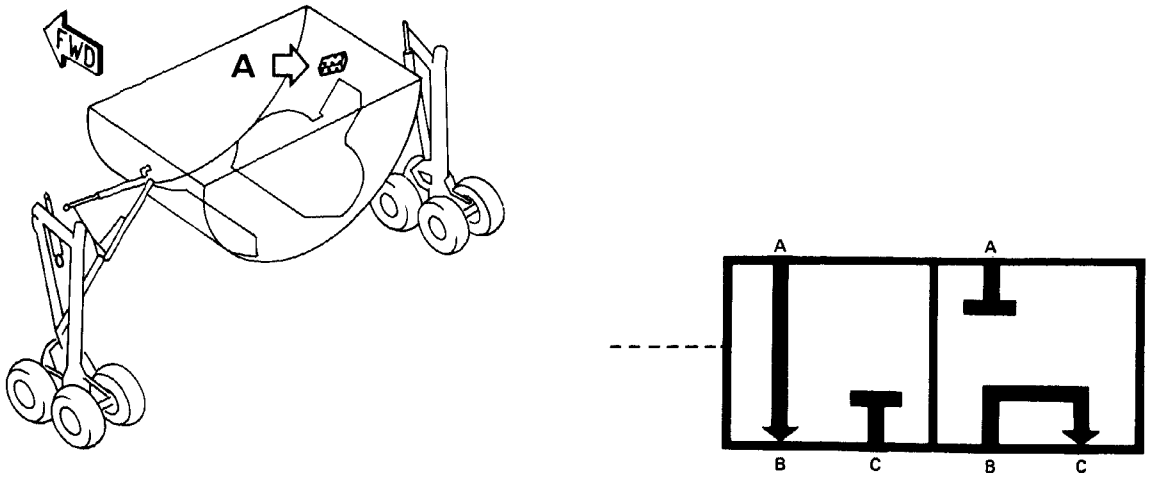
Drawing	PA25240003
Weight without fluid	4.68 kg
Identification of hydraulic ports	A - Pressure inlet B - Service outlet C - Return
Pressure drop from : A to B	ΔP 4 bars approx. for Q = 150 l/mn

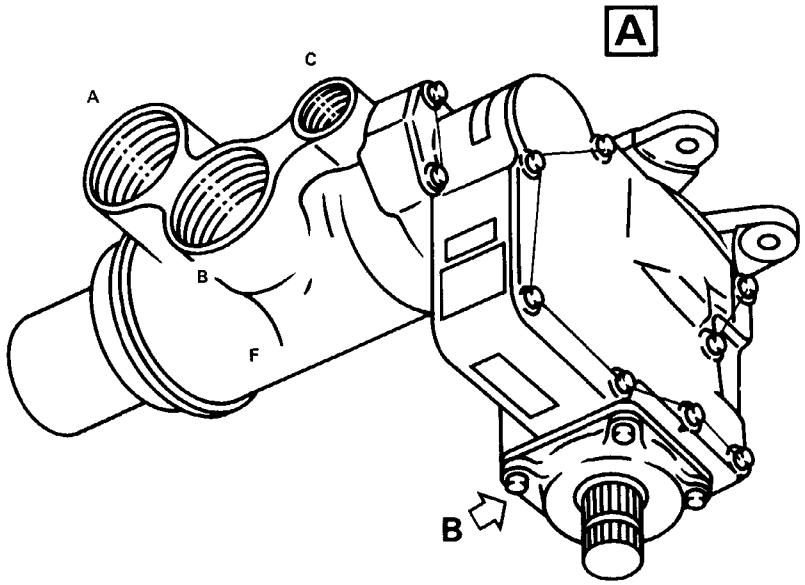


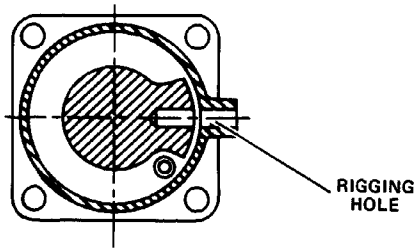


BM5 32 33 00 0 ACMO – 12 – 07
DM5

Free Fall Extension Control box
Figure 005







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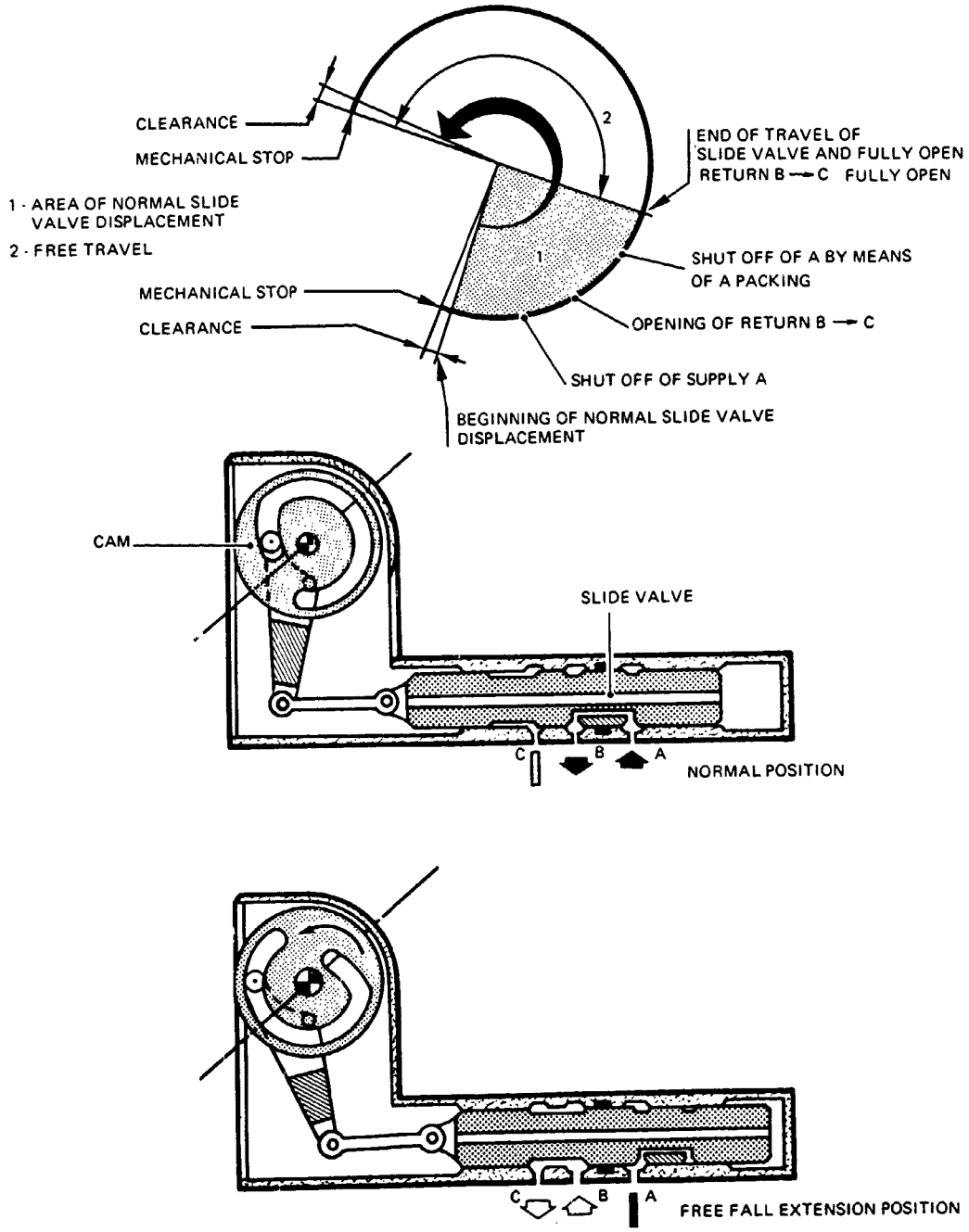
Free Fall Extension Cutout Valve
Figure 006



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Free Fall Extension Cutout Valve - Schematic
Figure 007

B to C	ΔP 10 bars approx. for Q = 30 l/mn
Internal leakage rate under 210 bars	
Slide valve in normal position	leakage ≤ 50 cm^3/mn
Slide valve in Free Fall position	zero leakage (packing)
Input shaft operating moment :	
Maximum permissible against stop :	5.5 m.daN
Maximum permissible prior to rupture of shaft	20 m.daN
Shear pin rupture in the event of slide valve jamming	6 m.daN
Slide valve operating moment	0.6 to 1.3 m.daN

C. Vent Valves

(1)Description (Ref. Fig. 008, 009)
(Ref. Fig. 010, 011)

(a)There are three vent valves, one per gear. The two main gear vent valves are identical.

(b)The vent valves serve, during landing gear Free Fall extension, to connect the following actuating cylinder chambers directly to reservoir return :
- gear actuating cylinder retraction chambers
- door actuating cylinder closing chambers.

(c)The vent valves are actuated by the landing gear Free Fall extension mechanical control system.

(d)Total sealing is achieved between the corresponding actuating cylinder chambers and the ports connected to reservoir return when the vent valves are closed.

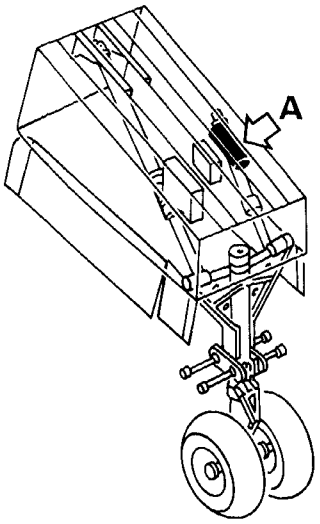
(e)In both closed and open positions sealing is achieved between the door and gear actuating cylinder chambers.

(f)A rigging hole is provided for locking the input lever in the valve closed position.

(g)The reservoir return line downstream of each vent valve is connected via a check valve to the extension system of each gear so that, during Free Fall extension, the extension chamber is supplied with fluid expelled from the retraction chamber.

(2)Characteristics

	Nose Gear Vent Valve	Main Gear Vent Valve
Drawing	PR 70277	PR 70285
Weight	1.450 Kg	1.750 Kg
Identification of hydraulic ports	A - Connected to door closing line C - Connected to gear retraction line B : - Connected to re- D : servoir return line.	A - Connected to door closing line C - Connected to gear retraction line B : - Connected to D : reservoir return line.
Operating moment	0.8 m.daN	0.8 m.daN
Maximum permissible moment against stop	4 m.daN	5 m.daN
Pressure drop from :		
A to B	$\Delta P \leq$ 7 bars for Q=30l/mn	$\Delta P \leq$ 15 bars for Q=70l/mn
C to D	$\Delta P \leq$ 5 bars for Q=30l/mn	$\Delta P \leq$ 12 bars for Q=70l/mn



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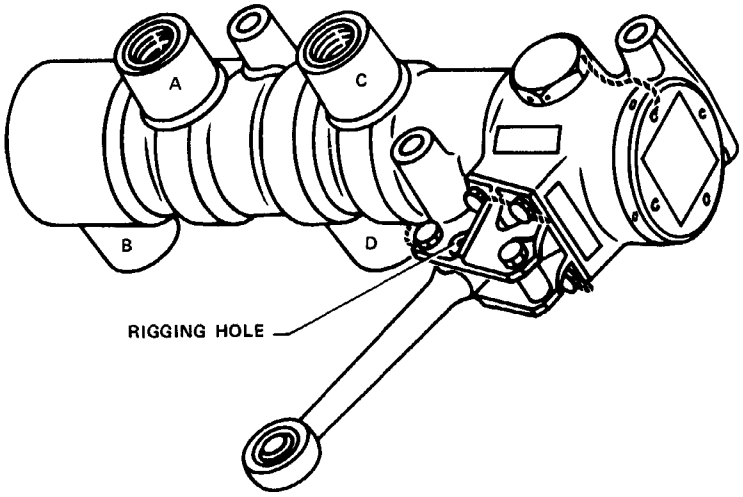

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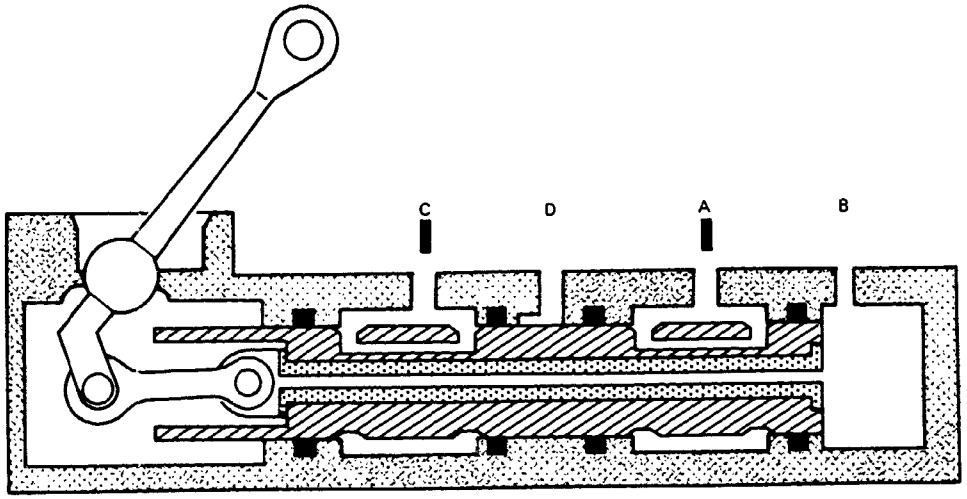
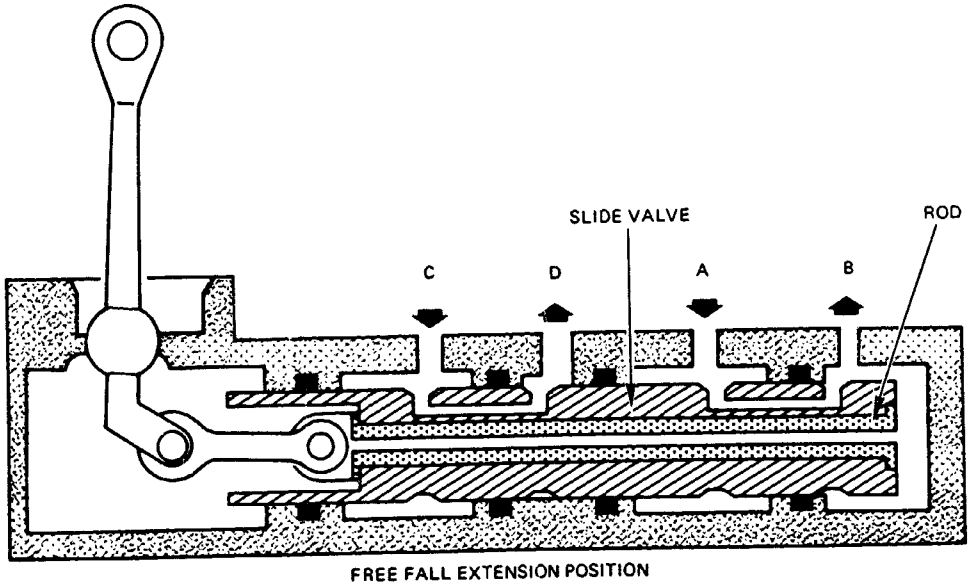
DM5 – 07

Nose Gear Vent Valve
Figure 008



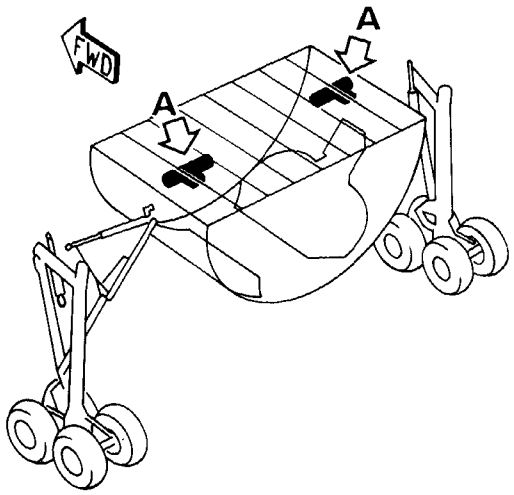
NORMAL POSITION



FREE FALL EXTENSION POSITION

BM5 32 33 00 0 ALMO

Nose Gear Vent Valve - Schematic
Figure 009



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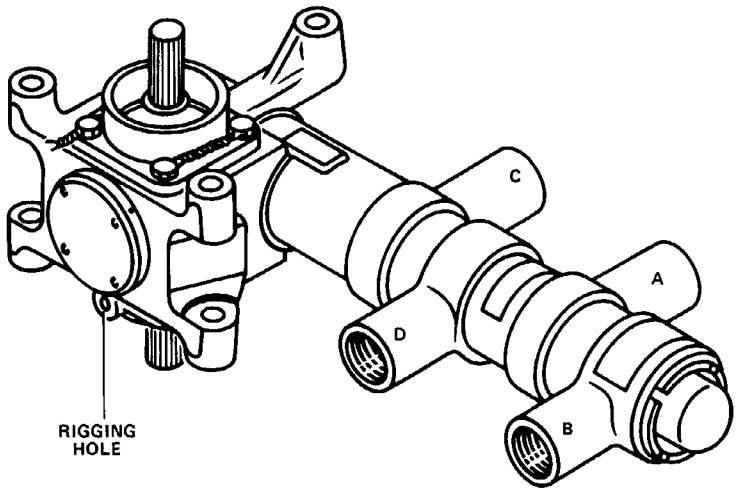

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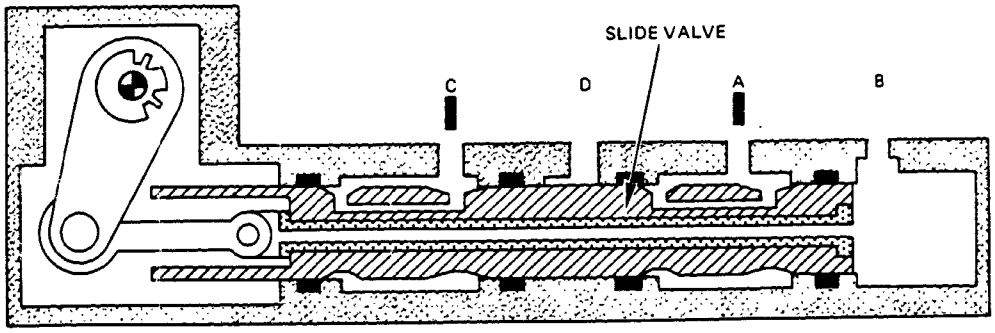
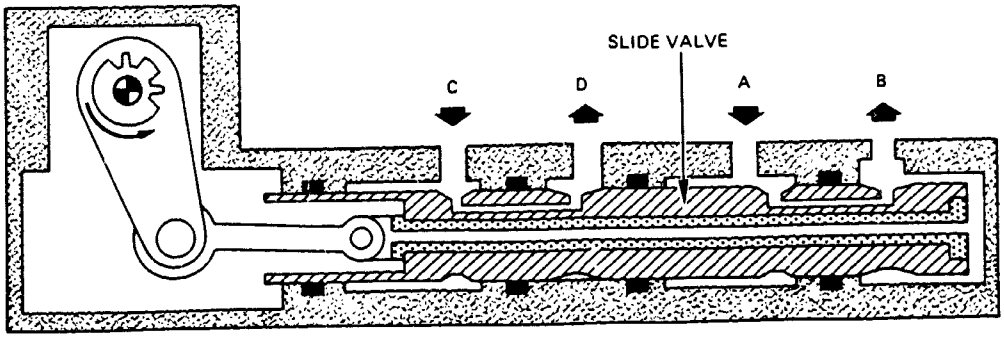
Main Gear Vent Valve
Figure 010



NORMAL POSITION



FREE FALL EXTENSION POSITION

BM5 32 33 00 0 AQMO

Main Gear Vent Valve - Schematic
Figure 011

4. Operation (Ref. Fig. 001)
Operation of the Free Fall extension control handle controls, through the cables, rods and bellcranks, the uplock release mechanisms and the cutout valve and vent valves which facilitate the free fall of the gear.

5. Restoration of System to Normal Operating Condition after Landing Gear Free Fall Extension

A. General
The purpose of this procedure is to :
(1)Fill the hydraulic lines and actuating cylinder chambers partially filled during the Free Fall extension.
(2)Restore the uplock mechanisms, modified during the Free Fall extension, to normal operating configuration.

B. Restoration of System with the Aircraft on the Ground
The procedure for restoring the system to the normal operating condition with the aircraft on the ground is as follows :
(1)Install ground safety pins on nose and main landing gears.
(2)Connect hydraulic ground power cart and electrical ground power unit.
(3)Make certain that Green hydraulic system is depressurized and that the Green hydraulic reservoir is correctly pressurized.
(4)Return landing gear Free Fall extension control handle to normal position.
(5)Place the door ground opening controls in **OPENED** position.
(6)Install safety collars on door actuating cylinders.
(7)Pressurize the Green hydraulic system and wait approximately thirty seconds.
(8)Remove safety collars from door actuating cylinders.
(9)Place door ground opening controls in **CLOSED** (normal) position : gear doors close.

C. Restoration of System with the Aircraft in Flight
In the event of landing gear Free Fall extension during a training flight, the system can be restored to normal operating configuration in flight by carrying out the following procedure :

- Free Fall extension control handle	Return to normal position
- Landing gear Normal control lever	**DOWN**
- Gear position indicating	Check

NOTE : Following this procedure, it is advisable to perform a landing gear retraction to confirm that the system has been restored to normal operating condition.

1. Restoration of System to Normal Operating Condition After Landing Gear Free Fall Extension

WARNING : CHECK THAT THE LANDING GEAR GROUND SAFETIES INCLUDING WHEEL CHOCKS ARE IN POSITION.

BEFORE APPLYING OR RELIEVING HYDRAULIC SYSTEM PRESSURE, MAKE CERTAIN THAT THE TRAVEL RANGES OF THE CONTROL SURFACES ARE CLEAR.

BEFORE PRESSURIZING HYDRAULIC SYSTEMS, CHECK THAT ALL CONTROLS ARE SET TO CORRESPOND WITH THE ACTUAL POSITION OF THE SERVICES THEY OPERATE.

BEFORE POWER IS SUPPLIED TO THE AIRCRAFT MAKE CERTAIN THAT ELECTRICAL CIRCUITS UPON WHICH WORK IS IN PROGRESS ARE ISOLATED.

BEFORE PRESSURIZING HYDRAULIC SYSTEMS MAKE CERTAIN THAT HYDRAULIC SYSTEM UNDER MAINTENANCE HAS BEEN ISOLATED.

A. General

The purpose of this procedure is to :

(1) Fill the hydraulic lines and actuating cylinder chambers partially filled during the Free Fall extension.

(2) Restore the uplock mechanisms, modified during the Free Fall extension, to normal operating configuration.

B. Equipment and Materials

ITEM	DESIGNATION
(1)	Cart - Ground Power Supply 150 l/m (39.6 us gal/min)
(2)	Safety Barriers
(3)	Warning Notice
(4)	Access Platform 2.6 m (8 ft. 7 in.)
Referenced Procedures	
- 24-41-00, P. Block 301	AC External Power Control
- 29-10-00, P. Block 301	Main Hydraulic Power - Pressurization/ Depressurization
- 29-14-00, P. Block 301	Hydraulic Reservoir Pressurizing System
- 32-12-11, P. Block 301	Main Gear Main Door - (Ground Door(s) Opening)
- 32-22-11, P. Block 301	Nose Gear Main Door - (Ground Door(s) Opening)

C. Restoration of Landing Gear Actuating System to Normal Operating Condition after Free Fall Extension

NOTE : This procedure can be accomplished aircraft jacked up or aircraft resting on its wheels in gear downlocked and doors open configuration.

(1) On panel 4VU

- make certain that landing gear control lever is in **DOWN** position and prohibit its operation by displaying a warning notice.

(2)Connect hydraulic ground power cart to Green hydraulic system (Ref. 29-10-00, P. Block 301).

(3)Energize the aircraft electrical network (Ref. 24-41-00, P. Block 301). Make certain that electronics racks ventilation is correct.

(4)Make certain that circuit breakers associated with retraction and extension system (**GA** and **GB**) are closed.

(5)Position safety barriers prohibiting access to the landing gear and door travel ranges.

(6)Make certain that safety pins are installed on main gear brace struts and nose gear drag strut.

R (7)If the free fall extension was performed with the main gear on ground, make certain that the two main landing gear uplock hooks are fully open. If necessary, use a 20 mm (0.8 in.) dia. steel bar (or equivalent tool) to fully open the main landing gear hooks.

R (8)Place the four landing gear door ground opening controls in **OPENED** position.

R (9)Install safety collars on door actuating cylinders.

R (10)Make certain that Green hydraulic system is depressurized (Ref. 29-10-00, P. Block 301).

R (11)Pressurize Green hydraulic reservoir (Ref. 29-14-00, P. Block 301).

R (12)Return landing gear Free Fall extension control handle to Normal position, in mechanical counterclockwise stop position.

NOTE : The control handle is stowed in the flight compartment on the F/O console.

R (13)Pressurize Green hydraulic system (Ref. 29-10-00, P. Block 301) and wait for 30 seconds approximately.

WARNING : **MAKE CERTAIN THAT DOOR TRAVEL RANGES ARE CLEAR.**

R (14)Remove safety collars from door actuating cylinders.

R (15)Close landing gear doors by placing the four landing gear door ground opening controls in **CLOSED** position.

R (16)Remove control handle from Free Fall extension control box and stow it on the F/O console.

D. Close-Up

(1)Make certain that drag and brace strut safety pins are in position.

(2)Shut down and disconnect hydraulic ground power cart (Ref. 29-10-00, P. Block 301).

(3)De-energize the aircraft electrical network (Ref. 24-41-00, P. Block 301).

(4)Remove safety barriers, close access doors and remove access platform.

(5)Make certain that working area is clean and clear of tools and miscellaneous items of equipment.

WARNING : **MAKE CERTAIN AREA UNDER THE AIRCRAFT IS CLEAR.**

1. Adjustment of Free Fall Control

WARNING : CHECK THAT THE LANDING GEAR GROUND SAFETIES INCLUDING WHEEL CHOCKS ARE IN POSITION.

BEFORE APPLYING OR RELIEVING HYDRAULIC SYSTEM PRESSURE, MAKE CERTAIN THAT THE TRAVEL RANGES OF THE CONTROL SURFACES ARE CLEAR.

BEFORE PRESSURIZING HYDRAULIC SYSTEMS, CHECK THAT ALL CONTROLS ARE SET TO CORRESPOND WITH THE ACTUAL POSITION OF THE SERVICES THEY OPERATE.

BEFORE POWER IS SUPPLIED TO THE AIRCRAFT MAKE CERTAIN THAT ELECTRICAL CIRCUITS UPON WHICH WORK IS IN PROGRESS ARE ISOLATED.

BEFORE PRESSURIZING HYDRAULIC SYSTEMS MAKE CERTAIN THAT HYDRAULIC SYSTEM UNDER MAINTENANCE HAS BEEN ISOLATED.

A. Reason for the Job

R - To check that pointer on cable tension regulator compensation scale is
R within limits (according to ambient temperature)
R - To check all cables for correct tension

B. Equipment and Materials

ITEM	DESIGNATION
(1)98A27901011000	Pin - Rigging, Landing Gear Emergency Lowering Control
(2)98A27901014000	Pin - Rigging, Nose Gear Emergency Lowering Control
(3)98A32101004000	Pin - Rigging, Main Gear Hydraulic System Vent Valve
(4)98A32201007000	Pin - Rigging, Nose Gear Hydraulic System Vent Valve
(5)98A32301000000	Pin - Rigging, Nose Gear Emergency Lowering Control
(6)98A32301006000	Pin - Rigging, Landing Gear Emergency Lowering Control
(7)98A32301007000	Pin - Rigging, Landing Gear Emergency Lowering Control
(8)98A32301016000	Pin - Rigging, Landing Gear Emergency Lowering Control
(9)98A32201004000	Pin - Rigging, Landing Gear Emergency Lowering Control
10)98A32301001000	Pin - Rigging, Landing Gear Emergency Lowering Control
11)98A32301003000	Pin - Rigging, Landing Gear Emergency Lowering Control
12)98A32301004000	Pin - Rigging, Nose Gear Emergency

ITEM	DESIGNATION
	Lowering Control
13)	Access Platform 2 m - 2.60 m 6 ft. 7 in. - 8 ft. 7 in.
14)	Safety Barriers
15)	Warning Notice
16)	Circuit Breaker Safety Clips
17)	Tensiometer
Referenced Procedures	
R - 07-11-00, P. Block 1	Jacking for Aircraft Maintenance Operations
- 24-41-00, P. Block 301	AC External Power Control
- 29-21-00, P. Block 301	Green Auxiliary System
- 29-14-00, P. Block 301	Hydraulic Reservoir Pressurizing System
- 29-10-00, P. Block 301	Main Hydraulic Power - Pressurization/ Depressurization
- 32-12-11, P. Block 301	Main Gear Main Door - (Ground Door(s) Opening)
- 32-22-11, P. Block 301	Nose Gear Main Door - (Ground Door(s) Opening)
- 32-33-00, P. Block 601	Free Fall Extension - Inspection/Check

C. Procedure

(1)Job set-up

R (a)Jack up the aircraft (Ref. 07-11-00, P. Block 1).

R (b)On panel 4VU

- make certain that landing gear control lever is in **DOWN** position and prohibit its operation by displaying a warning notice.

R (c)Between First Officer's and Third Occupant's seats

- make certain that Free Fall extension control handle is in Normal position.

R (d)Position access platform.

R (e)Position safety barriers prohibiting access to door travel ranges.

WARNING : MAKE CERTAIN THAT THE DOOR TRAVEL RANGES ARE CLEAR.

R (f)Open main and nose gear doors (Ref. 32-12-11, P. Block 301 and 32-22-11, P. Block 301).

WARNING : WHEN DOORS ARE OPEN MAKE CERTAIN SAFETY COLLARS ARE POSITIONED ON DOOR ACTUATING CYLINDERS.

R (g)Depressurize Green hydraulic reservoir (Ref. 29-14-00, P. Block 301).

R (h)Make certain that Green hydraulic system is depressurized (Ref. 29-10-00, P. Block 301).

(j)Remove floor panels 241LF, 241RF, 242CG and 242RF.

D. Adjustment

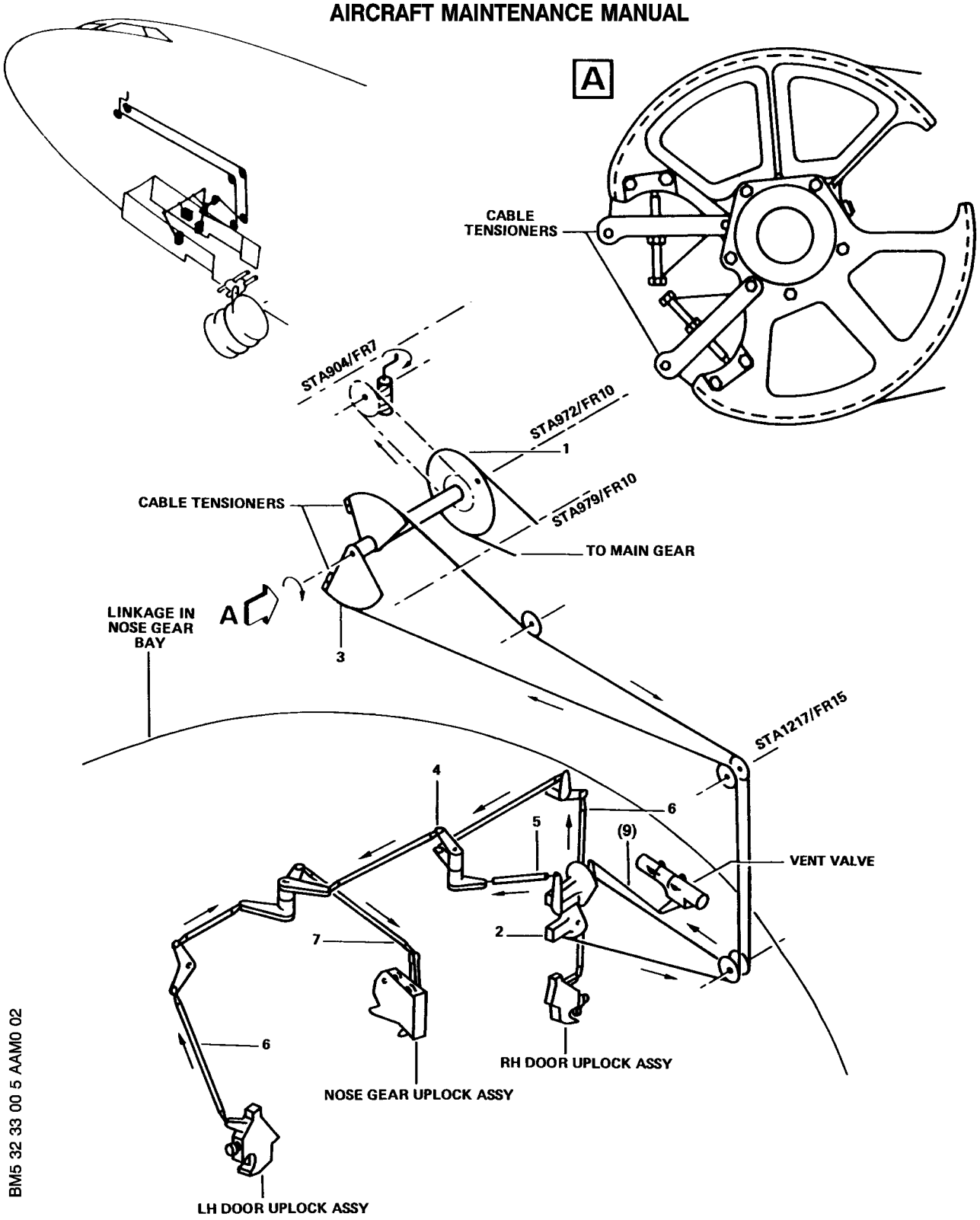
(1)Adjustment of nose gear Free Fall control (Ref. Fig. 501)

(a)Adjustment of cables in Zone 121-122 between STA972(FR10) and STA1217 (FR15).

1 Rig quadrant (1) with rigging pin 98A27901014000.

2 In nose gear well, make certain that rigging pin 98A32301000000 can be readily inserted in quadrant (2). Rigging holes can be aligned, if need be, by adjusting cable tensioners on quadrants (3).

NOTE : Make certain that the cable tensioners located at STA1236



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Nose Gear - Adjustment of Free Fall Control
Figure 501

R

(FR15a) are adjusted to their mid-travel position and that they are safetied.

3 With a tensiometer adjust tension of cables to the value corresponding to ambient temperature. Tension versus temperature is shown on the graph.
(Ref. Fig. 504)

4 Remove rigging pins 98A27901014000 and 98A32301000000.

5 In flight compartment (STA904, FR7), rotate Free Fall extension control handle 10 turns both ways several times to stabilize cable tension.

6 Position control handle so that rigging pin 98A27901014000 can be readily inserted in quadrant (1).
CAUTION : CONTROL HANDLE MUST BE REMOVED AS SOON AS RIGGING PIN HAS BEEN INSERTED IN QUADRANT (1).

7 Again check that rigging pin 98A32301000000 can be readily inserted in quadrant (2).

8 Tighten and safety the two cable tensioners on quadrant (3).

9 Remove rigging pins 98A27901014000 and 98A32301000000.

(b)Adjustment of the rigid control linkage in Zone 123-124 STA1212(FR15), between air vent valve and quadrant (2).

1 Rig vent valve with rigging pin 98A32201007000

2 Make certain that quadrant (2) can be rigged using rigging pin 98A32301000000.
Rigging holes can be aligned, if need be by adjusting length of rod.

3 Tighten and safety the rod end fittings.

4 Remove rigging pins 98A32201007000 and 98A32301000000.

(c)Adjustment of rigid control in Zone 123-124 STA1217(FR15) between air vent valve and crank (4).

1 Rig quadrant (2) using rigging pin 98A32301000000

2 Rig air vent valve using rigging pin 98A32201007000. If necessary adjust the length of the rod (9).

3 Tighten and safety rod (9) end fitting.

4 Rig crank (4) using rigging pin 98A32301003000. Rigging holes can be aligned, if necessary, by adjusting the length of rod (5).

5 Remove rigging pins 98A32201007000 and 92A32301000000 and 98A32301003000.

(d)Adjustment of rigid control linkage in Zone 123-124 STA1217(FR15) between crank (4) and the left and right gear door uplock assemblies.

1 Rig crank (4) using rigging pin 98A32301003000.

2 Make certain that it is possible to rig the left and right door uplock assemblies using rigging pins 98A32301000000. Rigging holes can be aligned, if need be, by adjusting length of rods (6).

3 Tighten and safety end fittings of both rods (6).

4 Remove rigging pins 98A32301000000 and 98A32301003000.

(e)Adjustment of rigid control linkage STA1212(FR15) between crank (4) and nose gear uplock assembly.

1 Rig crank (4) using rigging pin 98A32301003000.

2 Make certain that it is possible to rig the nose gear uplock assembly using rigging pin 98A32301004000. Rigging holes can be aligned, if need be, by adjusting length of rod (7).

3 Tighten and safety rod (7) end fittings.

4 Remove rigging pins 98A321003000 and 98A32301004000.

(2)Adjustment of main gear Free Fall control

R NOTE : The units of the graph are the same as the ones displayed on
R the aircraft tension regulator.

(Ref. Fig. 502)

(Ref. Fig. 503)

(a)Adjustment of cables in Zone 121-122 and 145-146 between quadrant (1) STA972(FR10) and transmission assembly (2) STA2665(FR49).

1 Rig quadrant (1) with rigging pin 98A27901014000.

2 Make certain that transmission assembly (2) can be rigged, using pin 98A32301016000.
Rigging holes can be aligned, if need be, by adjusting the two cable tensioners on quadrant (1).
NOTE : Make certain that the cable turnbuckles located between STA2135(FR38.1) and STA2294(FR40/41) are adjusted to their mid-travel and that they are safetied.

3 Adjust cable until tension regulator pointer lines up with graduation corresponding to ambient temperature. Tension versus temperature is shown on graph (Ref. Fig. 503)

4 During and after cable adjustment flex and quickly release the two cables ; when the cables are deflected make certain that the regulator locking tube slides freely.

5 Remove rigging pins 98A27901014000 and 98A32301016000.

6 In flight compartment, rotate Free Fall extension control handle 10 turns both ways several times to stabilize cable tension.

7 Position control handle so that rigging pin 98A27901014000 can be readily inserted in quadrant (1).
CAUTION : CONTROL HANDLE MUST BE REMOVED AS SOON AS RIGGING PIN HAS BEEN INSERTED IN QUADRANT (1).

8 Again check that rigging pin 98A32301016000 can be readily inserted in the transmission assembly (2).

9 Tighten and safety cable tensioners fitted to quadrant (1).

10 Remove rigging pins : 98A27901014000 and 98A32301016000.

(b)Adjustment of cables in Zone 145-146 between transmission assembly (2) at STA2665(FR49) and pulley assembly (3)
(Ref. Fig. 504)

1 Rig transmission assembly (2) using rigging pin 98A32301016000.

2 Make certain that the pulley assembly (3) can be rigged using rigging pin 98A32301007000. Rigging holes can be aligned, if need be, by adjusting the two turnbuckles.

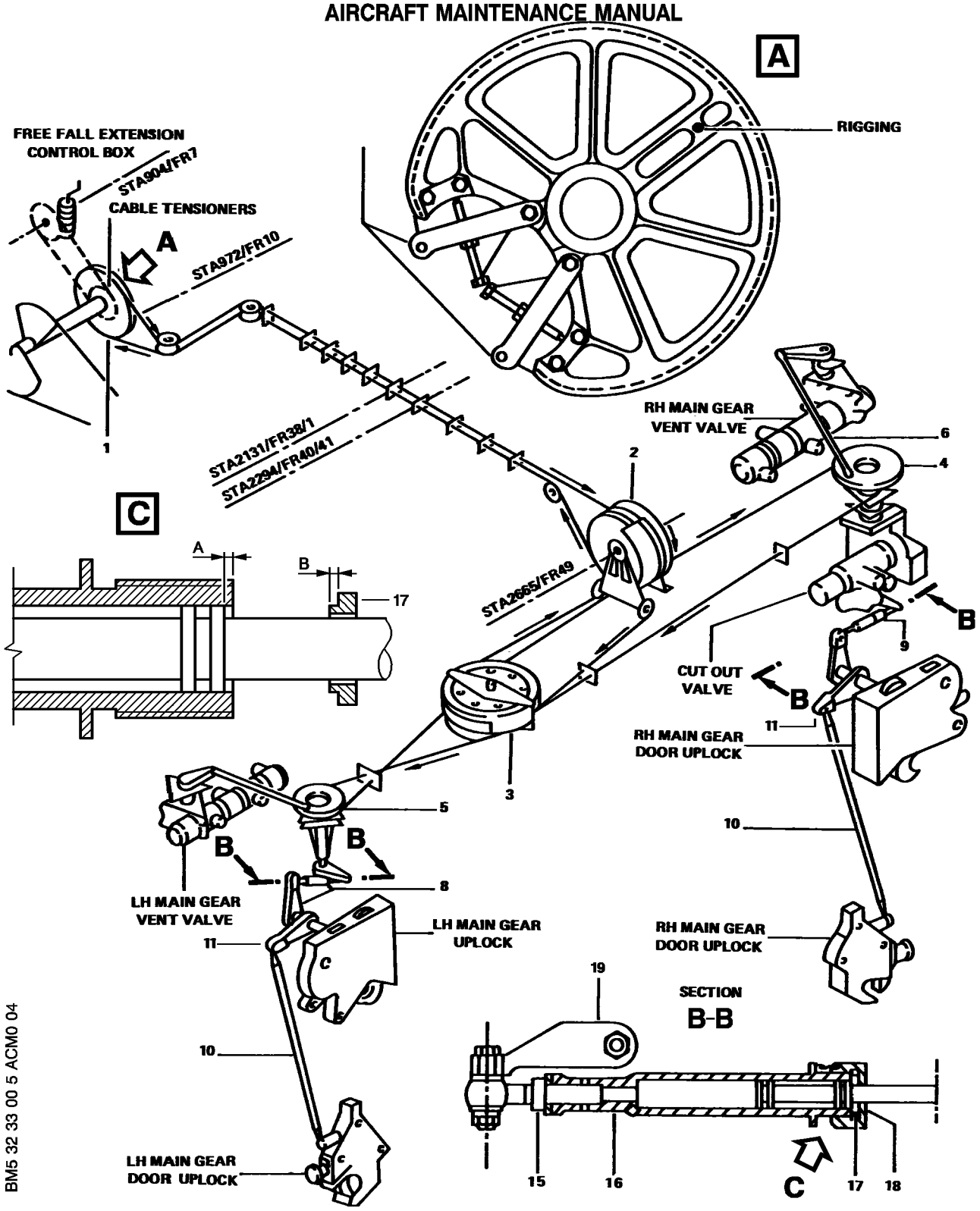
3 Adjust tension of cables to the value corresponding to ambient temperature. Tension versus temperature is shown on graph (Ref. Fig. 504).

4 Remove rigging pins 98A32301016000 and 98A32301007000.

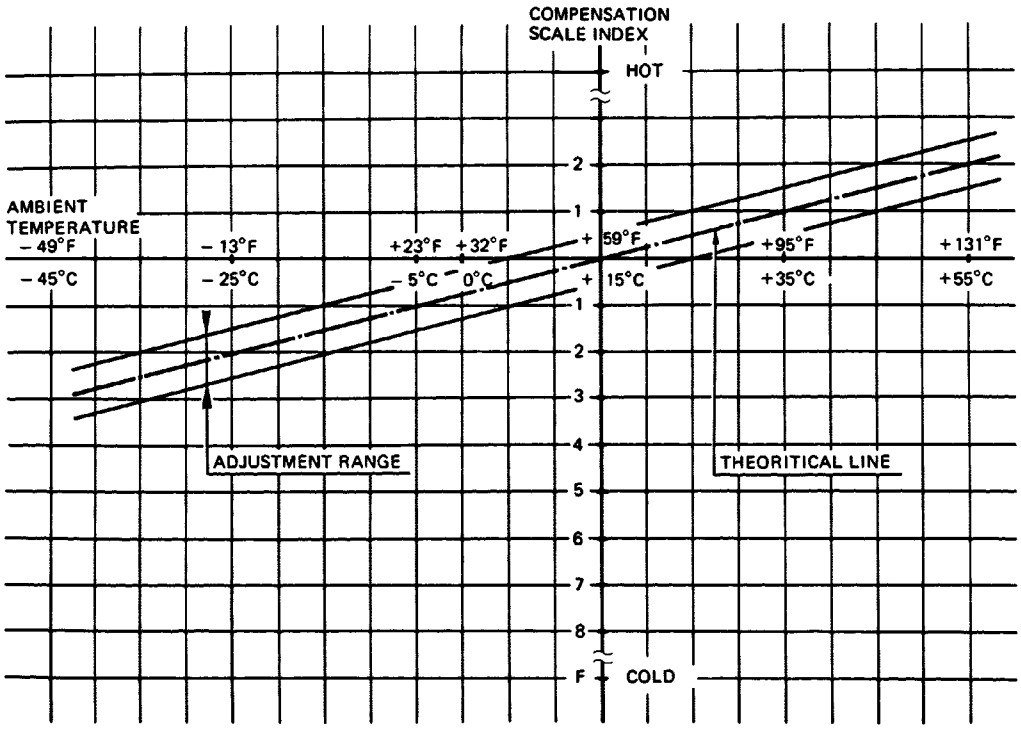
5 In flight compartment (STA904(FR7), rotate Free Fall extension control handle 10 turns both ways several times to stabilize cable tension.

6 Position control handle so that rigging pin 98A27901014000 can be readily inserted in quadrant (1).
CAUTION : CONTROL HANDLE MUST BE REMOVED AS SOON AS RIGGING PIN HAS BEEN INSERTED IN QUADRANT (1).

7 Again check that rigging pin 98A32301007000 can be readily inserted in the pulley assembly (3).



Main Gear - Free Fall Control Adjustment
Figure 502



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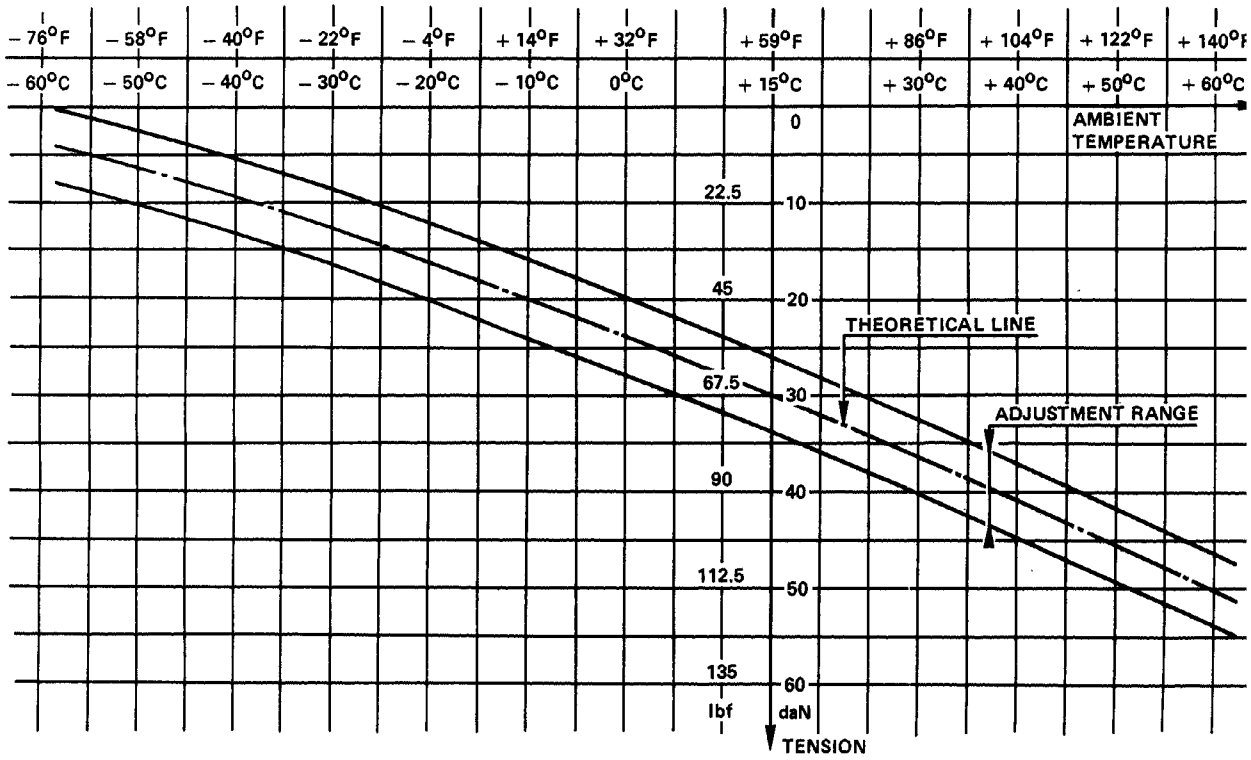
Free Fall Control - Cable Adjustment Graph (With Tension Regulator)
Figure 503

R



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Free Fall Control - Cable Tension Adjustment Graph
(Without Tension Regulator)
Figure 504

8 Tighten and safety turnbuckles.
9 Remove rigging pins 98A27901014000 and 98A32301007000.

(c)Cable adjustment in zone 146 between pulley assembly (3) and Free Fall extension control quadrant (4) at STA2665(FR49).
1 Rig pulley assembly (3) using rigging pin 98A32301007000.
2 Make certain that it is possible to rig the Free Fall extension control quadrant (4), using rigging pin 98A32301006000.
Rigging holes can be aligned, if need be, by adjusting the two turnbuckles.
3 Adjust tension of cables to the value corresponding to ambient temperature. Tension versus temperature is shown on graph (Ref. Fig. 504)
4 Remove rigging pins 98A32301007000 and 98A32301006000.
5 In flight compartment, rotate Free Fall extension control handle 10 turns both ways several times to stabilize cable tension.
6 Position control handle so that rigging pin 98A27901014000 can be readily inserted in quadrant (1).
CAUTION : CONTROL HANDLE MUST BE REMOVED AS SOON AS RIGGING PIN HAS BEEN INSERTED IN QUADRANT (1).
7 Again check that rigging pin 98A32301006000 can be readily inserted in the Free Fall extension control quadrant (4).
8 Tighten and safety turnbuckles.
9 Remove rigging pins 98A27901014000 and 98A32301006000.

(d)Adjustment of cables in Zone 145 between pulley assembly (3) and control pulley (5) at STA2665(FR49).
1 Rig pulley assembly (3) using rigging pin 98A32301007000.
2 Make certain that it is possible to rig control pulley (5), using pin 98A27901011000.
Rigging holes can be aligned, if need be, by adjusting the two turnbuckles.
3 Adjust tension of cable to the value corresponding to the ambient temperature. Tension versus temperature is shown on graph (Ref. Fig. 504)
4 Remove rigging pins 98A32301007000 and 98A27901011000.
5 In flight compartment rotate Free Fall extension control handle 10 turns both ways several times to stabilize cable tension.
6 Position control handle so that rigging pin 98A27901014000 can be readily inserted in quadrant (1).
CAUTION : CONTROL HANDLE MUST BE REMOVED AS SOON AS RIGGING PIN HAS BEEN INSERTED IN QUADRANT (1).
7 Again check that rigging pin 98A27901011000 can be readily inserted in control pulley (5).
8 Fully tighten and safety turnbuckles.
9 Remove rigging pins 98A27901014000 and 98A27901011000.

(e)Adjustment of rigid control linkage in Zone 146 between the Free Fall extension quadrant (4) and the right main gear vent valve at STA2665(FR49).
1 Rig the Free Fall extension quadrant (4), using rigging pin 98A32301006000.
2 Make certain that it is possible to rig the right main gear vent valve using rigging pin 98A32101004000.
If necessary, adjust rod (6) lenght so that rigging pin can be

inserted.
3 Tighten and safety rod (6) and fittings.
4 Remove rigging pins 98A32101004000 and 98A32301006000.

(f)Adjustment of rigid control linkage in zone 145, between control pulley (5) and left main gear vent valve at STA2665(FR49).
1 rig left main gear vent valve using rigging pin 98A32101004000.
2 Make certain that it is possible to rig control pulley (5) using rigging pin 98A27901011000.
If necessary adjust rod (7) length so that rigging pin can be inserted in control pulley.
3 Tighten and safety rod (7) end fittings.
4 Remove the two rigging pins 98A32101004000 and 98A27901011000.

(g)Adjustment of left main gear telescopic rod (8) in zone 145, at STA2665(FR49).
1 Rig control pulley (5) using rigging pin 98A27901011000.
2 Rig control pulley (4) using rigging pin 98A32301006000.
3 Rig left main uplock assembly using rigging pin 98A32201004000.
NOTE : If pin cannot be inserted, adjust rod (8) length until uplock assembly can be rigged.
4 Cut and remove lockwire and remove locknut (15) from rod (16) body. Rotate rod body to loosen eye end until rod body contacts the piston rod (rod in compressed position).
5 This configuration having been obtained, rotate rod body a further half-turn to preload piston rod against rod body.
6 Tighten and safety rod body locknut (15).
7 Remove rigging pin 98A32301006000.
8 Remove rigging pin 98A27901011000 from control pulley (5) in flight compartment, slowly rotate free fall extension control handle until telescopic rod (8) is extended to its maximum length. This position is reached when the input lever (19) and the telescopic rod are fully aligned (104 deg. approx. travel of lever).
9 Remove nut (18) and measure clearance at J1 (J1 = A - B), A is measured between the piston end and body edge and B is measured on shim (17). Clearance must be between 0.5 and 1 mm (0.019 and 0.039 in.) between piston and shim (17) (Ref. Fig. 502).
If dimension is not within tolerance, install new shim with appropriate thickness ; the dimensions of available shims are given by the following table :

THICKNESS					
mm	inches	mm	inches	mm	inches
9	0.3543	6.5	0.2559	4	0.1575
8.5	0.3346	6	0.2362	3.5	0.1378
8	0.3149	5.5	0.2165	3	0.1181
7.5	0.2953	5	0.1968	2.5	0.0984
7	0.2756	4.5	0.1772	2	0.0787

10 Tighten and safety nut (18).
11 Remove rigging pin 98A32201004000 from left main gear uplock assembly.
12 Move free fall control system to normal position.

(h)Adjustment of right main gear telescopic rod (9) in zone 146, at STA2665(FR49).
Procedure is the same as for adjustment of left main gear telescopic rod.

(j)Adjustment of right rigid control linkage in zone 145 between left main gear uplock assembly and left main gear door uplock assembly at STA2665(FR49).

1 Rig left main gear uplock assembly using rigging pin 98A32201004000.

2 Make certain that left main gear door uplock assembly can be rigged using rigging pin 98A32301001000.
If necessary, adjust rod (10) length.

3 Tighten and safety rod (10) end fittings.

4 Remove the two rigging pins 98A32201004000 and 98A32301001000.

(k)Adjustment of rigid control linkage in zone 146 between right main gear uplock assembly and right main gear door uplock assembly at STA2665 (FR48).

- Procedure is the same as for adjustment of left main gear rigid control linkage.

E. Test

(1)Carry out a Free Fall extension functional test (Ref. Paragraph 3).
NOTE : After Free Fall extension, system must be restored to normal operating condition.

F. Close-Up

(1)In zones 242, 241, install removed panels.

(2)Make certain that working area is clean and clear of tools miscellaneous items of equipment.

(3)Pressurize hydraulic reservoirs (Ref. 29-14-00, P. Block 301).
WARNING : MAKE CERTAIN THAT THE DOOR TRAVEL RANGES ARE CLEAR.

(4)Close landing gear doors (Ref. 32-12-11, P. Block 301 or 32-22-11, P. Block 301).

(5)Replenish hydraulic reservoirs (Ref. 12-12-29, P. Block 1).

(6)Remove warning notices.

(7)Close access doors, remove access platforms and safety barriers.

(8)Remove all ground handling and maintenance equipment standard and special tools, together with ground power and replenishing equipment, all access equipment and miscellaneous items.

2. Operational Test

WARNING : CHECK THAT THE LANDING GEAR GROUND SAFETIES INCLUDING WHEEL CHOCKS ARE IN POSITION.

BEFORE APPLYING OF RELIEVING HYDRAULIC SYSTEM PRESSURE, MAKE CERTAIN THAT THE TRAVEL RANGES OF THE CONTROL SURFACES ARE CLEAR.

BEFORE PRESSURIZING HYDRAULIC SYSTEMS, CHECK THAT ALL CONTROLS ARE SET TO CORRESPOND WITH THE ACTUAL POSITION OF THE SERVICES THEY OPERATE.

BEFORE POWER IS SUPPLIED TO THE AIRCRAFT MAKE CERTAIN THAT ELECTRICAL CIRCUITS UPON WHICH WORK IS IN PROGRESS ARE ISOLATED.

BEFORE PRESSURIZING HYDRAULIC SYSTEMS, TAKE CERTAIN THAT HYDRAULIC SYSTEM UNDER MAINTENANCE HAS BEEN ISOLATED.

A. Reason for the Job

Test of landing gear Free Fall control system
Configuration : Aircraft resting on its wheels.

B. Equipment and Materials

ITEM	DESIGNATION
(1)	Safety Barriers
(2)	Warning Notice
(3)	Access Platform 2.60m (8ft. 7in.)
Referenced Procedures	
- 24-41-00, P. Block 301	AC External Power Control
- 29-10-00, P. Block 301	Main Hydraulic Power - Pressurization/ Depressurization
- 29-21-00, P. Block 301	Green Auxiliary Power

C. Procedure

(1)Job set-up

(a)On panel 4VU

- Install control handle on Free Fall extension control box and make certain that landing gear control lever is in **DOWN** position and prohibit its operation by displaying a warning notice.

(b)Between First Officer's and Third Occupant's seats:

- make certain that Free Fall extension control handle is in Normal position, in mechanical counterclockwise stop position.

NOTE : The control handle is stowed in the flight compartment on the F/O console.

R WARNING : BEFORE INSTALLING THE GROUND SAFETY PINS, MAKE CERTAIN THAT THE
R LANDING GEAR IS DOWNLOCKED.
R THIS IS ACHIEVED BY CHECKING THAT :
R - IN FLIGHT COMPARTMENT, ON PANELS 400VU AND 76VU, LH-NOSE-RH
R GREEN ARROWS ARE ON.
R - DOWNLOCK VISUAL INDICATORS ARE VISIBLE ON WINGS (MAIN GEARS)

R AND ON THE TELESCOPIC DRAG STRUT (NOSE GEAR).

(c)Make certain that safety pins are installed in main gear brace struts and nose gear telescopic drag strut

(d)Energize the aircraft electrical network (24-41-00, P. Block 301). Make certain that electronics racks ventilation is correct.

(e)Make certain that circuit breakers associated with extension and retraction control system (GA and GB) are closed.

(f)Position safety barriers prohibiting access to door and gear travel ranges

D. Test

NOTE : Aircraft resting on its wheels ; doors closed.

(1)On panels 400VU and 76VU

- check on left and right main gear and nose gear position annunciators that green arrows are on.

(2)Depressurize Green hydraulic system (Ref. 29-10-00, P. Block 301) and prohibit its pressurization by displaying a warning notice :

- on Green system ground connector
- on panel 427VU, to prohibit Green electric pumps operation (ELEC PUMPS pushbutton switch).

WARNING : MAKE CERTAIN THAT THE DOOR TRAVEL RANGES ARE CLEAR.

(3)Between First Officer's and Third Occupant's seats :

- with control handle on Free Fall extension control box, slowly turn handle clockwise until all door uplocks are released and doors open. Stop turning handle.
- check that all doors are open.
- place the four door ground opening controls in OPENED position.

(4)Manually assist doors to fully open position and install safety collars on door actuating cylinders

(5)Continue to turn control handle clockwise until 20th turn.

(6)Visually check that the mechanical release lever on each gear uplock is in released position before a maximum of 20 turns.

(a)On main gear uplocks

- check that, in released position, the lever with the green arrow is located within the zone painted green on the uplock. (Ref. Fig. 505)

(b)On nose gear uplock

- check that in released position, the gap in the mechanical release lever is located facing the zone painted green on the uplock. (Ref. Fig. 506)

NOTE : When mechanical clockwise stop position is reached, the release levers could be out of the green painted zone. This is only due to the additional travel on the control handle.

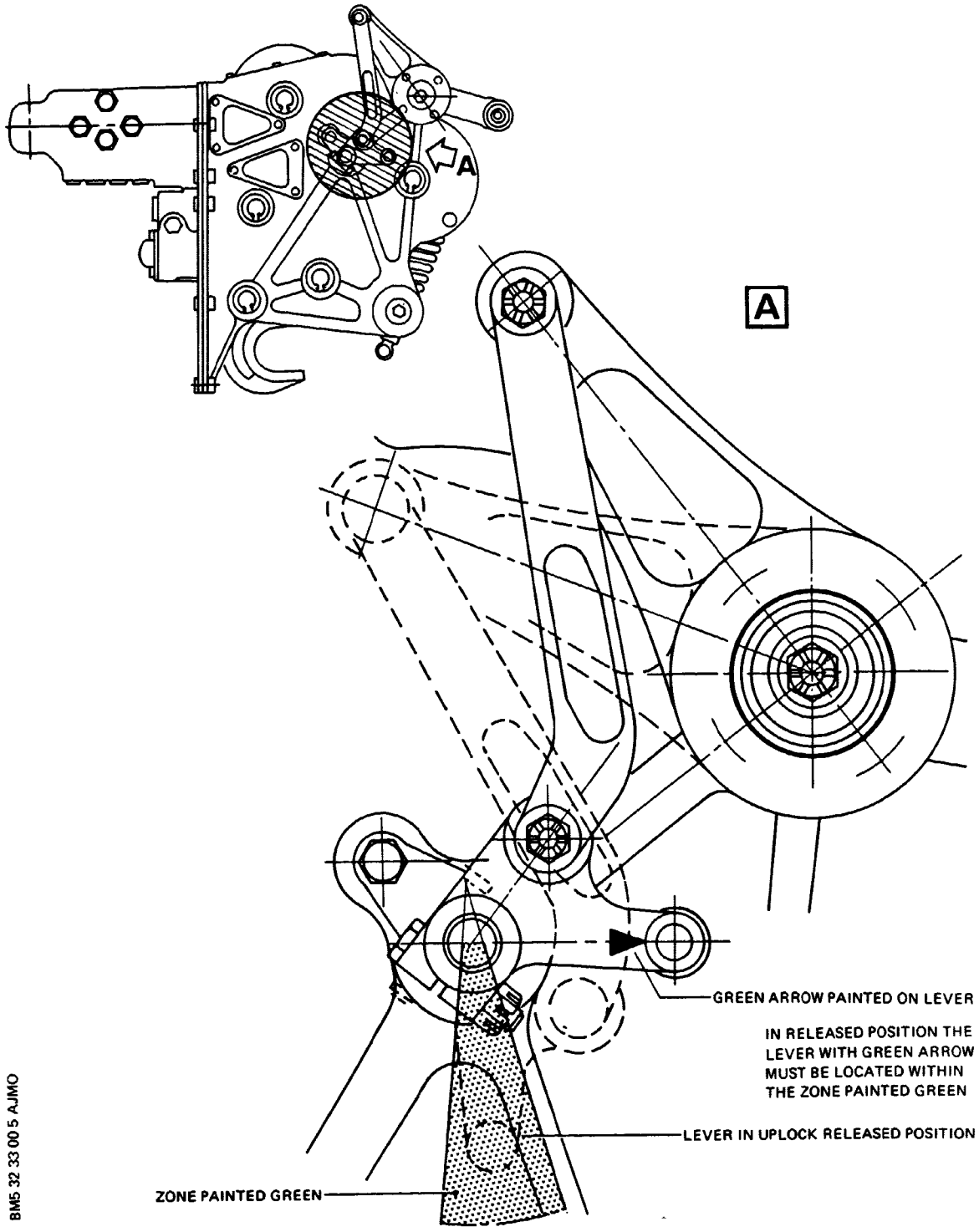
(7)Upon completion of check restore mechanical release system to normal operating condition :

(a)Remove safety collars from door actuating cylinders.

(b)Return Free Fall extension control handle to Normal position, in mechanical counterclockwise stop position.

(c)Pressurize Green hydraulic system using Green electric pumps (Ref. 29-21-00, P. Block 301)

(d)On panel 4VU


A
A
GREEN ARROW PAINTED ON LEVER
IN RELEASED POSITION THE LEVER WITH GREEN ARROW MUST BE LOCATED WITHIN THE ZONE PAINTED GREEN
LEVER IN UPLOCK RELEASED POSITION
ZONE PAINTED GREEN
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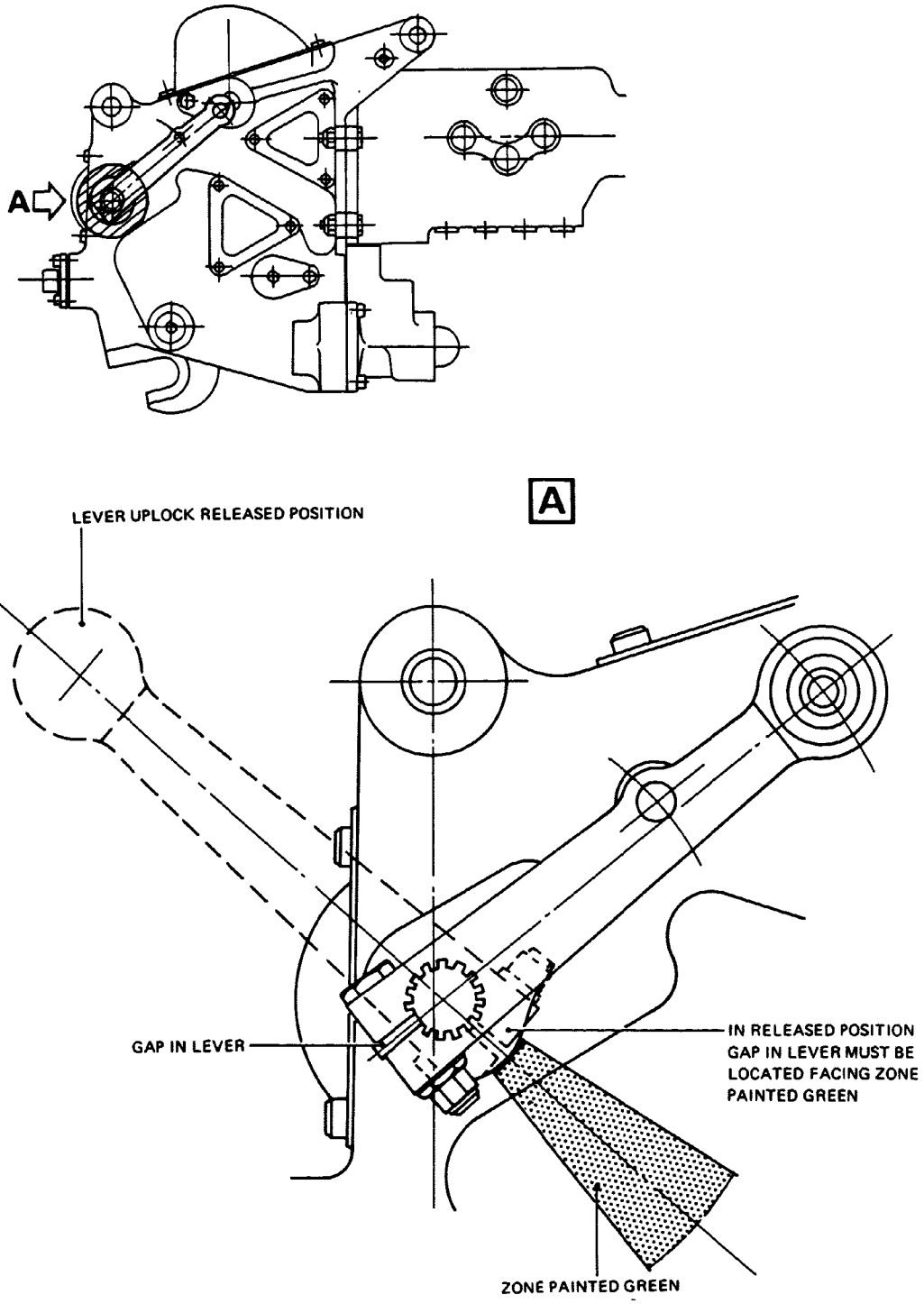
Main Gear Uplock - Identification of Mechanical Release Position
Figure 505



Nose Gear Uplock - Identification of Mechanical Release Position
Figure 506

- make certain that landing gear control lever is in **DOWN** position and display a warning notice prohibiting its operation.

WARNING : MAKE CERTAIN THAT DOOR TRAVEL RANGES ARE CLEAR.

(e) Close gear doors by placing the four door ground opening controls in **CLOSED** position.

(f) Remove control handle from Free Fall extension control box and stow it on the F/O console.

E. Close-Up

(1) De-energize the aircraft electrical network.

(2) Remove safety barriers, close access doors and remove access platform and warning notices.

(3) Make certain that working area is clean and clear of tools and miscellaneous items of equipment.

3. Functional Test

WARNING : CHECK THAT THE LANDING GEAR GROUND SAFETIES INCLUDING WHEEL CHOCKS ARE IN POSITION.

BEFORE APPLYING OR RELIEVING HYDRAULIC SYSTEM PRESSURE, MAKE CERTAIN THAT THE TRAVEL RANGES OF THE CONTROL SURFACES ARE CLEAR.

BEFORE PRESSURIZING HYDRAULIC SYSTEMS, CHECK THAT ALL CONTROLS ARE SET TO CORRESPOND WITH THE ACTUAL POSITION OF THE SERVICES THEY OPERATE.

BEFORE POWER IS SUPPLIED TO THE AIRCRAFT MAKE CERTAIN THAT ELECTRICAL CIRCUITS UPON WHICH WORK IS IN PROGRESS ARE ISOLATED.

BEFORE PRESSURIZING HYDRAULIC SYSTEMS, MAKE CERTAIN THAT HYDRAULIC SYSTEM UNDER MAINTENANCE HAS BEEN ISOLATED.

A. Reasons for the Job

(1)Landing gear Free Fall extension test.

R (2)Nose landing gear Free Fall extension test with main gear on ground.

R (3)Restoration of system to normal operating condition after Free Fall extension.

B. Equipment and Materials

ITEM	DESIGNATION
(1)	Cart - Ground Power Supply 150 l/m (39.6 us gal/min), Hydraulic Safety Barriers
(2)	Safety Barriers
(3)	Warning Notice
(4)	Access Platform 2.6 m (8 ft. 7 in.)
Referenced Procedures	
- 07-11-00, P. Block 1	Jacking for Aircraft Maintenance Operations
- 24-41-00, P. Block 301	AC External Power Control
- 29-10-00, P. Block 301	Main Hydraulic Power - Pressurization/ Depressurization
- 29-14-00, P. Block 301	Hydraulic Reservoir Pressurizing System
- 32-12-11, P. Block 301	Main Gear Main Door - (Ground Door(s) Opening)
- 32-22-11, P. Block 301	Nose Gear Main Door - (Ground Door(s) Opening)
- 32-21-00, P. Block 601	Nose Gear
R - 32-31-00, P. Block 501	Normal Extension and Retraction
- 32-33-00, P. Block 201	Free Fall Extension

C. Procedure

(1)Job set-up

(a)Jack up the aircraft (Ref. 07-11-00, P. Block 1).

(b)On panel 4VU

- make certain that landing gear control lever is in **DOWN** position and prohibit its operation by displaying a warning notice.

(c)Between First Officer's and Third Occupant's seats :

- Install control handle on Free Fall extension control box and make certain that landing gear Free Fall extension control handle is in Normal position, in mechanical counterclockwise stop position.
  NOTE : The control handle is stowed in the flight compartment on the F/O console.

(d)Connect hydraulic ground power cart to Green hydraulic system (Ref. 29-10-00, P. Block 301)

(e)Energize the aircraft electrical network (Ref. 24-41-00, P. Block 301). Make certain that electronics racks ventilation is correct.

(f)Make certain that circuit breakers associated with retraction and extension system (GA and GB) are closed.

(g)Position safety barriers prohibiting access to the landing gear and door travel ranges.

(h)On panels 400VU and 76VU

- on left and right main gear and nose gear position annunciators, check that the green arrows are on.

(j)Remove safety pins from main gear brace struts and nose gear drag strut.

WARNING : MAKE CERTAIN THAT THE DOOR TRAVEL RANGES ARE CLEAR.

(k)Pressurize hydraulic reservoirs (Ref. 29-14-00, P. Block 301).

(l)Pressurize Green hydraulic system (Ref. 29-11-00, P. Block 301).

(m)On panel 4VU

Place landing gear control lever in UP position.

(n)Make certain that landing gears are retracted and doors closed.

(p)On panels 400VU and 76VU

- on left and right main gear and nose gear position annunciators, check that green arrows go off.

(q)On panel 4VU

- place landing gear control lever in Neutral position.

(r)Depressurize Green hydraulic system (Ref. 29-10-00, P. Block 301).

D. Test

(1)Test of Free Fall extension.

NOTE : Aircraft is jacked up, with landing gears retracted and doors closed.

R CAUTION : FOR LANDING GEAR FREE FALL EXTENSION TESTS, THE SAFETY
R STAY MUST NOT BE INSTALLED. DAMAGE CAN OCCUR TO THE AIRCRAFT
R FUSELAGE WHEN THE AIRCRAFT MOVES DURING THE TESTS.

(a)On panel 4VU

- place landing gear control lever is DOWN position.
- on panels 400VU and 76VU, on left and right main gear and nose gear position annunciators, red UNLK legends come on.

WARNING : MAKE CERTAIN THAT LANDING GEAR AND DOOR TRAVEL RANGES ARE CLEAR.

(b)In flight compartment between the First Officer's and Third Occupant's seats :

- With control handle on Free Fall extension box, slowly rotate landing gear Free Fall control handle clockwise, 1 turn per second approximately, until door release is obtained.
  Door release requires 14 to 18 turns
- On panels 400VU and 76VU, on the three DOOR annunciators, check that

DOOR legends come on amber.

(c)Keep rotating control handle clockwise until landing gear uplock release is obtained. Landing gear uplock release requires 17 to 20 turns.
Check that handle reaches clockwise stop position after 20.5 turns.

(d)Doors are opened and landing gears extended by gravity.
Due to a lack of aerodynamic forces, the nose gear may not downlock, but the main gear must always downlock. If nose gear does not downlock lock manually by pushing it afterwards. If 110 daN (247 lbf.) are exceeded, check load required to downlock nose gear (Ref. 32-21-00, P. Block 601).

(e)On panels 400VU and 76VU, on landing gear position annunciators, check that :
- the three green arrows come on and the three red UNLK legends go off (landing gears extended and downlocked).

NOTE : In particular, make certain that nose gear is locked by checking on nose gear drag strut that visual indicator is visible from LH side of avionics compartment and that nose gear green arrow is on.

WARNING : BEFORE INSTALLING THE GROUND SAFETY PINS, MAKE CERTAIN THAT THE LANDING GEAR IS DOWNLOCKED.
THIS IS ACHIEVED BY CHECKING THAT :
- IN FLIGHT COMPARTMENT, ON PANELS 400VU AND 76VU, LH-NOSE-RH GREEN ARROWS ARE ON.
- DOWNLOCK VISUAL INDICATORS ARE VISIBLE ON WINGS (MAIN GEARS) AND ON TELESCOPIC DRAG STRUT (NOSE GEAR).

(f)Install safety pins on main gear brace struts and nose gear drag strut.

CAUTION : DO NOT FORGET TO RESTORE SYSTEM TO NORMAL OPERATING CONDITION.
(Ref. Paragraph 3).

(g)Check the Free Fall extension control linkage (Ref. 32-33-00, P. Block 601).

(h)Close-Up

1 Make certain that drag and brace strut safety pins are in position.

2 Shut down and disconnect hydraulic ground power cart (Ref. 29-10-00, P. Block 301).

3 De-energize the aircraft electrical network (Ref. 24-41-00, P. Block 301).

4 Remove safety barriers, close access doors and remove access platform.

5 Make certain that working area is clean and clear of tools and miscellaneous items of equipment.

WARNING : MAKE CERTAIN AREA UNDER THE AIRCRAFT IS CLEAR.

6 Lower the aircraft onto its wheels (Ref. 07-11-00, P. Block 1).

(2)Nose gear Free Fall extension test with main gear on ground.

WARNING : THE FOLLOWING TEST IS PERFORMED WITH MAIN GEAR ON GROUND. STRICTLY ADHERE TO THE FOLLOWING PROCEDURE AND TAKE ALL NECESSARY SAFETY PRECAUTIONS TO PREVENT INJURY TO PERSONNEL OR DAMAGE TO EQUIPMENT.

(a)Connect main landing gear safety relay control simulator test set without connecting connectors 40GB-A and 79GB-A (Ref. 32-00-00, P. Block 501).

On safety relay control simulator test set :
- place SIMULATION FLIGHT/GROUND CONFIGURATIONS switches in GROUND position,
- place TEST/NORMAL switches (BOGIE BEAMS FLIGHT/GROUND switches) in NORMAL position (GROUND position),
- place SIMULATION/LANDING GEAR DOWNLOCKED switches in DOWNLOCKED position,
- place FLIGHT/GROUND switch 3XG in GROUND position.

(b)Make certain that safety pins are installed on main and nose gear struts.

(c)Remove chocks from main gear wheels.

(d)Make certain that PARKING BRAKE is in Normal (released) position.

(e)Jack up the aircraft at FR10 to obtain 60 mm (2.362 in.) minimum nose wheel-to-ground clearance (Ref. 07-11-00, P. Block 1).

WARNING : VERTICAL LOAD AT FR10 SHALL NOT EXCEED 12000 daN.

(f)On panel 9VU :
- place PARKING BRAKE control handle in on (applied) position and install chocks at main gear wheels.

(g)Open, safety and tag the following circuit breaker :

PANEL	SERVICE	IDENT.	LOCATION
133VU	HYDRAULIC/NOSE/WHEEL/STRG	1GC	333/T53

WARNING : MAKE CERTAIN THAT NOSE GEAR SHOCK ABSORBER IS FULLY EXTENDED :
SLIDING TUBE STAND-OUT DIMENSION BETWEEN 466 AND 468 mm (18.346 and 18.424 in.).
MAKE CERTAIN THAT NOSE WHEELS ARE CENTERED : RED INDEX ON NOSE GEAR ROTATING SECTION ALIGNED WITH TRIANGULAR CUTOUT ON CABLE PROTECTIVE COVER AT FRONT OF NOSE GEAR.

(h)Open both main gear doors by means of door ground opening control handles (Ref. 32-31-00, P. Block 501 (Refer to Functional Test, Paragraph (2) (a))).

(j)Install safety collars on main gear door actuating cylinders.

(k)Remove safety pin from nose gear telescopic drag strut.

WARNING : MAKE CERTAIN THAT SAFETY PINS ARE IN POSITION ON BOTH MAIN GEARS.
MAKE CERTAIN THAT DOOR TRAVEL RANGES ARE CLEAR.

(l)Install safety barriers prohibiting access to nose gear travel range.

(m)Energize the aircraft electrical network (Ref. 24-41-00, P. Block 301). Make certain that electronics racks ventilation is correct.

(n)Pressurize Green hydraulic system (Ref. 29-10-00, P. Block 301).

(p)On landing gear control lever switch unit 2GA, lift protective flap.

WARNING : MAKE CERTAIN THAT NOSE GEAR SHOCK ABSORBER IS FULLY EXTENDED AND THAT NOSE WHEELS ARE CENTERED.

(q)On landing gear safety relay control simulator test set, place :
- switch 8GA/9GA and switch 11GA/12GA in TEST position (FLIGHT position),
- the 6 SIMULATION FLIGHT/GROUND CONFIGURATIONS switches in FLIGHT position.

(r)Place landing gear normal control lever in UP position to retract nose landing gear in uplock position.
(s)Depressurize Green hydraulic system (Ref. 29-10-00, P. Block 301).
(t)Use a 20 mm (0.8 in.) dia. steel bar (or an equivalent tool) to operate (close) the MLG uplocks.
(u)Pressurize Green hydraulic system (Ref. 29-10-00, P. Block 301).
(v)When the NLG doors have closed and locked, place landing gear control lever in Neutral position and depressurize Green hydraulic system (Ref. 29-10-00, P. Block 301).
(w)Disconnect landing gear safety relay control simulator test set (Ref. 32-00-00, P. Block 501).
(x)On panel 4VU :
- place landing gear control lever in DOWN position,
- on panels 400VU and 76VU, on landing gear position annunciator, the left and right main gear green arrows come on and the NLG red UNLK legends come on.

WARNING : MAKE CERTAIN THAT LANDING GEAR AND DOOR TRAVEL RANGES ARE CLEAR.

(y)In flight compartment between the First Officer's and Third Occupant's seats :
- with control handle on Free Fall extension box, slowly rotate landing gear Free Fall control handle clockwise, 1 turn per second approximately, until door release is obtained.
  Door release requires 14 to 18 turns,
- on panels 400VU and 76VU, on the three DOOR annunciators, check that DOOR legends come on amber.

(z)Keep rotating control handle clockwise until nose gear uplock release is obtained. Nose gear uplock release requires 17 to 20 turns.
Check that handle reaches clockwise stop position after 20.5 turns.
(aa)Nose gear doors are opened and NLG extended by gravity.
Due to a lack of aerodynamic forces, the nose gear may not downlock.
If nose gear does not downlock, lock manually by pushing it afterwards.
If 110 daN (247 lbf.) are exceeded, check load required to downlock nose gear (Ref. 32-21-00, P. Block 601).
(ab)On panels 400VU and 76VU, on landing gear position center annunciator, check that :
- the NLG green arrow comes on and the NLG red UNLK legend goes off. (Nose Landing Gear extended and downlocked).

NOTE : Make certain that nose gear is locked by checking on nose gear drag strut that visual indicator is visible from LH side of avionics compartment and that nose gear green arrow is on.

WARNING : BEFORE INSTALLING THE GROUND SAFETY PINS, MAKE CERTAIN THAT THE LANDING GEAR IS DOWNLOCKED.
THIS IS ACHIEVED BY CHECKING THAT :
- IN FLIGHT COMPARTMENT, ON PANELS 400VU AND 76VU, NOSE GREEN ARROWS ARE ON.
- VISUAL INDICATOR IS VISIBLE ON TELESCOPIC DRAG STRUT.

(ac)Install safety pins on nose gear drag strut.

CAUTION : DO NOT FORGET TO RESTORE SYSTEM TO NORMAL OPERATING CONDITION.
(Ref. Paragraph 3).

(ad)Check the Free Fall extension control linkage (Ref. 32-33-00, P. Block 601).

(ae)Close-Up

1 Make certain that main gear door travel ranges are clear.

2 Make certain that door ground opening control is in **OPENED** position.

3 Remove safety collars from main gear door actuating cylinders.

4 Pressurize Green hydraulic system (Ref. 29-10-00, P. Block 301).

5 Place door ground opening control handle in closed position (Ref. 32-31-00, P. Block 501 (Refer to Functional Test, Para. (3) (a))).

6 Depressurize Green hydraulic system and disconnect hydraulic ground power cart (Ref. 29-10-00, P. Block 301).

7 De-energize the aircraft electrical network (Ref. 24-41-00, P. Block 301).

8 Remove safety clip and tag and close circuit breaker 1GC.

9 On panel 9VU :

- place **PARKING BRAKE** control handle in Normal (released) position.

10 Lower the aircraft onto its wheels (Ref. 07-11-00, P. Block 1).

(3)Restoration of landing gear actuating system to normal operating condition after Free Fall extension (Ref. 32-33-00, P. Block 201).

E. Close-Up

(1)Make certain that drag and brace strut safety pins are in position.

(2)Shut down and disconnect hydraulic ground power cart (Ref. 29-10-00, P. Block 301).

(3)De-energize the aircraft electrical network (Ref. 24-41-00, P. Block 301).

(4)Remove safety barriers, close access doors and remove access platform.

(5)Make certain that working area is clean and clear of tools and miscellaneous items of equipment.

WARNING : MAKE CERTAIN AREA UNDER THE AIRCRAFT IS CLEAR.

(6)Lower the aircraft onto its wheels (Ref. 07-11-00, P. Block 1).

4. System Test

WARNING : CHECK THAT THE LANDING GEAR GROUND SAFETIES INCLUDING WHEEL CHOCKS ARE IN POSITION.

BEFORE APPLYING OR RELIEVING HYDRAULIC SYSTEM PRESSURE, MAKE CERTAIN THAT THE TRAVEL RANGES OF THE CONTROL SURFACES ARE CLEAR.

BEFORE PRESSURIZING HYDRAULIC SYSTEMS, CHECK THAT ALL CONTROLS ARE SET TO CORRESPOND WITH THE ACTUAL POSITION OF THE SERVICES THEY OPERATE.

BEFORE POWER IS SUPPLIED TO THE AIRCRAFT MAKE CERTAIN THAT ELECTRICAL CIRCUITS UPON WHICH WORK IS IN PROGRESS ARE ISOLATED.

BEFORE PRESSURIZING HYDRAULIC SYSTEMS MAKE CERTAIN THAT HYDRAULIC SYSTEM UNDER MAINTENANCE HAS BEEN ISOLATED.

A. Reasons for the Job
(1)Landing gear Free Fall extension test.
(2)Restoration of landing gear actuating system to normal operating condition after Free Fall extension.

B. Equipment and Materials
Identical with functional test, plus the following :

ITEM	DESIGNATION
(1)97A32302001000	Measuring Equipment - Emergency Extension Control Load
(2)	Stop Watch

C. Procedure
This test is identical to the functional test plus the following :
(1)Check of landing gear extension time
NOTE : Landing gear extension time must be measured between uplock release and end of travel.
- for the nose gear : 20 ± 3 sec.
- for main gear : 12 ± 1.5 sec.
(2)Check landing gear and door uplock release loads : ≤ 10 daN (22.48 lbf.)
NOTE : Loads are checked with the measuring equipment to be installed on the Free Fall control through flight compartment floor.
(3)Check number of turns required of the handle : approximately 20 turns for landing gear uplock release.

FREE FALL EXTENSION - INSPECTION/CHECK

WARNING : CHECK THAT THE LANDING GEAR GROUND SAFETIES INCLUDING WHEEL CHOCKS ARE IN POSITION.
BEFORE APPLYING OR RELIEVING HYDRAULIC SYSTEM PRESSURE, MAKE CERTAIN THAT THE TRAVEL RANGES OF THE CONTROL SURFACES ARE CLEAR.
BEFORE PRESSURIZING HYDRAULIC SYSTEMS, CHECK THAT ALL CONTROLS ARE SET TO CORRESPOND WITH THE ACTUAL POSITION OF THE SERVICES THEY OPERATE.
BEFORE POWER IS SUPPLIED TO THE AIRCRAFT MAKE CERTAIN THAT ELECTRICAL CIRCUITS UPON WHICH WORK IS IN PROGRESS ARE ISOLATED.
BEFORE PRESSURIZING HYDRAULIC SYSTEMS MAKE CERTAIN THAT HYDRAULIC SYSTEM UNDER MAINTENANCE HAS BEEN ISOLATED.

1. Equipment and Materials

ITEM	DESIGNATION
A.	Safety Barriers
B.	Warning Notice
C.	Access Platform 2.60 m (8 ft. 7 in.)
Referenced Procedures	
- 07-11-00, P. Block 1	Jacking for Aircraft Maintenance Operations
- 24-00-00, P. Block 301	Electrical Power - General
- 24-41-00, P. Block 301	AC External Power Control
- 29-10-00, P. Block 301	Main Hydraulic Power - Pressurization/ Depressurization
- 29-14-00, P. Block 301	Hydraulic Reservoir Pressurizing System
- 32-12-11, P. Block 301	Main Gear Main Door - (Ground Door(s) Opening)
- 32-22-11, P. Block 301	Nose Gear Main Door - (Ground Door(s) Opening)
R - NTM 51-10-07	
R - SRM 51-74-10, P. Block 201	

2. Procedure

A. Job Set-Up
(1)Electrically ground the aircraft (Ref. 24-00-00, P. Block 301).
(2)Install access platform.
(3)De-energize the aircraft electrical circuits (Ref. 24-41-00, P. Block 301).

(5)Open, safety and tag the following circuit breakers :

PANEL	SERVICE	IDENT.	LOCATION
22VU	LDG GEAR/EXTEND/CTL	1GA	201/J28
133VU	HYDRAULIC/L/G PROX DET/& RELAYS SYS1/GEAR ON &/CTR PNL/POS IND	3GB	332/U53
133VU	HYDRAULIC/NOSE/WHEEL/STRG	1GC	333/T53
133VU	HYDRAULIC/L/G PROX DET/& RELAYS SYS2/FLT/GND	2GB	332/U52
133VU	HYDRAULIC/L/G PROX DET/& RELAY	1GB	332/U51

PANEL	SERVICE	IDENT.	LOCATION
	SYS1/RELAYS &/RETRACT/CTL		
133VU	HYDRAULIC/L/G PROX DET/& RELAYS	119GB	333/U52
	SYS1/FLT/GND		
133VU	HYDRAULIC/L/G PROX DET/& RELAYS	83GB	331/V51
	SYS2/GEAR DOWN &/OVHD PNL/POS IND		

(6)On panel 4VU
- make certain that landing gear control lever is in **DOWN** position and prohibit its operation by displaying a warning notice.

(7)Between First Officer's and Third Occupant's seats
- make certain that free fall extension control handle is in normal position.

(8)Position safety barriers to prohibit access to door travel ranges.
WARNING : MAKE CERTAIN THAT DOOR TRAVEL RANGES ARE CLEAR.

(9)Open main and nose gear doors (Ref. 32-12-11, P. Block 301 and 32-22-11, P. Block 301).
WARNING : MAKE CERTAIN THAT SAFETY COLLARS ARE POSITIONED ON DOOR ACTUATING CYLINDERS.

(10)Depressurize Green hydraulic system (Ref. 29-10-00, P. Block 301) and prohibit its operation by displaying a warning notice:
- on Green hydraulic system ground connectors
- on panel 427VU to prohibit operation of Green electric pumps (**ELEC PUMPS** pushbutton switch).

(11)Depressurize Green hydraulic reservoir (Ref. 29-14-00, P. Block 301) and prohibit its pressurization by displaying a warning notice :
- on panel 429VU to prohibit APU starting,
- on reservoir pressurization connectors.

B. Inspection

NOTE : The inspection requires a mechanic in the NLG compartment and another mechanic in the flight compartment. This latter must turn the NLG free fall extension control handle (20.5 rotations until it comes against the stops) so that the pulley assy components are visible in the upper parts of the NLG compartment.

(1)Do a detailed visual inspection of the free fall extension control linkage and pulley assy.
Make sure that :
- There is no damage, corrosion or cracks on all the parts of the pulley assy components.

R (a)If an extensive corrosion is detected replace pulley assy components.
R (b)If slight corrosion is detected continue the inspection as follows :
R 1 Perform a NDT Eddy Current inspection (Ref. NTM 51-10-07, Part 6) on
R corroded part(s) in order to determine presence of crack.
R - If a crack or geometrical deformation or metal pick-up is detected,
R replace pulley assy components.
R - If no crack, no geometrical deformation and no metal pick-up is
R detected, repair corroded part(s) (Ref. SRM 51-74-10, P. Block 201).

NOTE : In case of repair, jacking for free fall extension is necessary (Ref. 07-11-00, P. Block 1).

(2)Return landing gear free fall extension control handle to normal position, in mechanical counterclockwise stop position.

C. Close-Up

(1)Pressurize hydraulic reservoirs (Ref. 29-14-00, P. Block 301).

(2)Pressurize Green hydraulic system (Ref. 29-10-00, P. Block 301) and wait for 30 seconds approximately.

WARNING : MAKE CERTAIN THAT THE DOOR TRAVEL RANGES ARE CLEAR.

(4)Remove warning notices.

(5)Remove safety clips and tags and close circuit breakers 3GB, 1GA, 1GC, 1GB, 2GB, 119GB and 83GB.

(6)Remove safety barriers, close access doors and remove access platform.

(7)Lower the aircraft onto its wheels (Ref. 07-11-00, P. Block 1).

FREE FALL EXTENSION CONTROL BOX - REMOVAL/INSTALLATION

WARNING : CHECK THAT THE LANDING GEAR GROUND SAFETIES INCLUDING WHEEL CHOCKS ARE IN POSITION.
BEFORE APPLYING OR RELIEVING HYDRAULIC SYSTEM PRESSURE, MAKE CERTAIN THAT THE TRAVEL RANGES OF THE CONTROL SURFACES ARE CLEAR.
BEFORE PRESSURIZING HYDRAULIC SYSTEMS, CHECK THAT ALL CONTROLS ARE SET TO CORRESPOND WITH THE ACTUAL POSITION OF THE SERVICES THEY OPERATE.
BEFORE PRESSURIZING HYDRAULIC SYSTEMS, MAKE CERTAIN THAT HYDRAULIC SYSTEM UNDER MAINTENANCE HAS BEEN ISOLATED.
BEFORE POWER IS SUPPLIED TO THE AIRCRAFT MAKE CERTAIN THAT ELECTRICAL CIRCUITS UPON WHICH WORK IS IN PROGRESS ARE ISOLATED.

1. Equipment and Materials

ITEM	DESIGNATION
A. 98A27901009000	Pin Rigging, Parking Brake Control
B. 98A32301002000	Pin Rigging, Parking Brake Control
C.	Wheel Chocks
D.	Access Platform 4.70 m (15 ft. 8 in.)
E.	Warning Notices
F.	Protective Barriers
G.	Corrosion Resistant Steel Lockwire dia 0.8 mm (0.032 in.)
H. Material No. 04-004	Common Greases (Ref. 20-31-00)
R J. Material No. 04-022	Common Greases (Ref. 20-31-00)
K. Material No. 11-002	Cleaning Agents (Ref. 20-31-00)
Referenced Procedures	
- 29-10-00, P. Block 301	Main Hydraulic Power-Pressurization/ Depressurization
- 29-14-00, P. Block 301	Hydraulic Reservoir Pressurizing System
- 32-12-11, P. Block 301	Main Gear Main Door-(Ground Door(s) Opening)
- 32-22-11, P. Block 301	Nose Gear Main Door-(Ground Door(s) Opening)
- 32-33-00, P. Block 501	Free Fall Extension
- 32-33-26, P. Block 401	Free Fall Extension Cables
- 32-45-00, P. Block 501	Parking/Ultimate Emergency Braking

2. Procedure

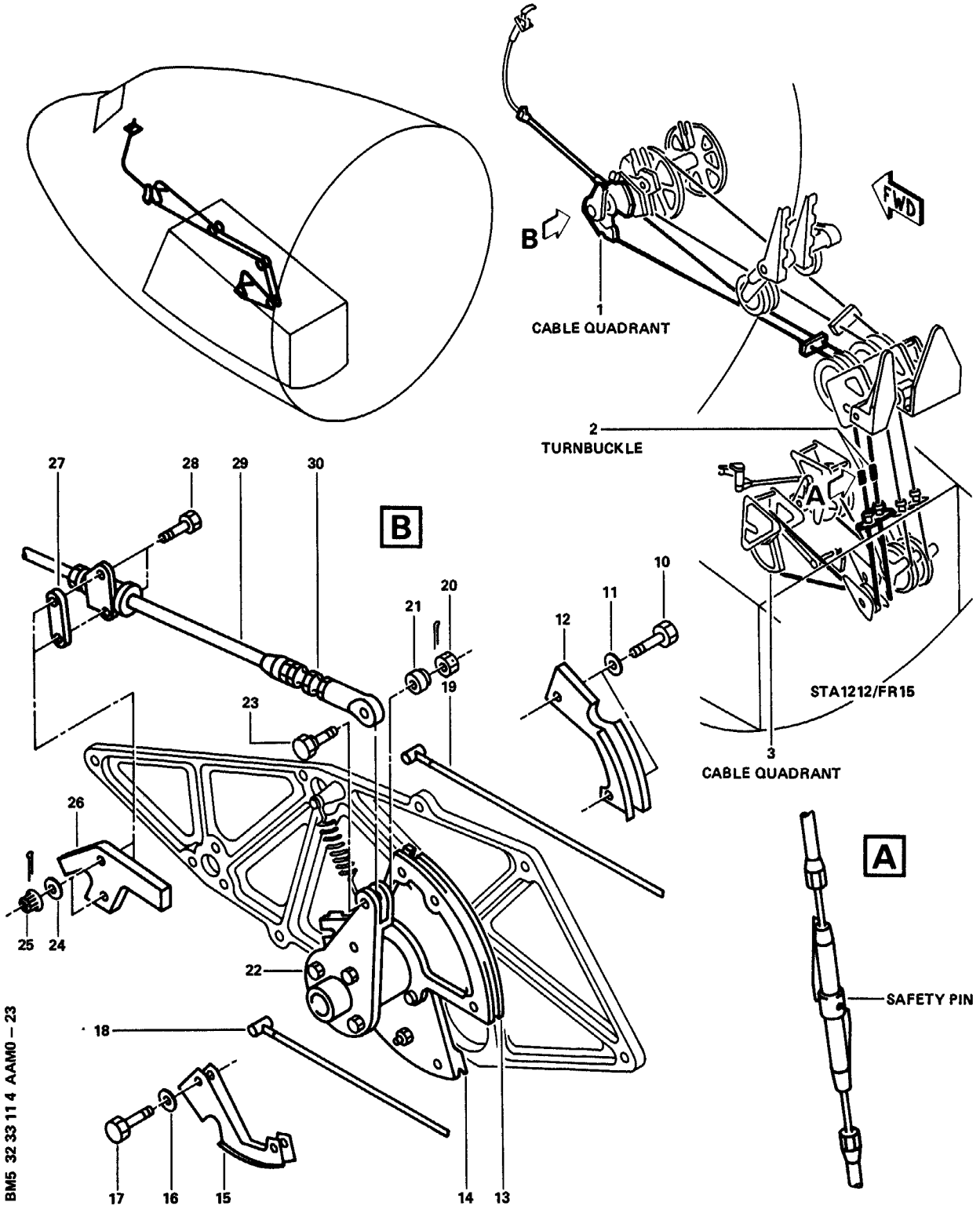
A. Job Set-Up
(1)Make certain that wheel chocks are in position.
(2)Position access platform.
(3)On panel 4VU :
- make certain that landing gear control lever is in **DOWN** position and prohibit its operation by displaying a warning notice.

(4)Between First Officer and 3rd Occupant seats :
- make certain that Free Fall extension control handle is in normal position.

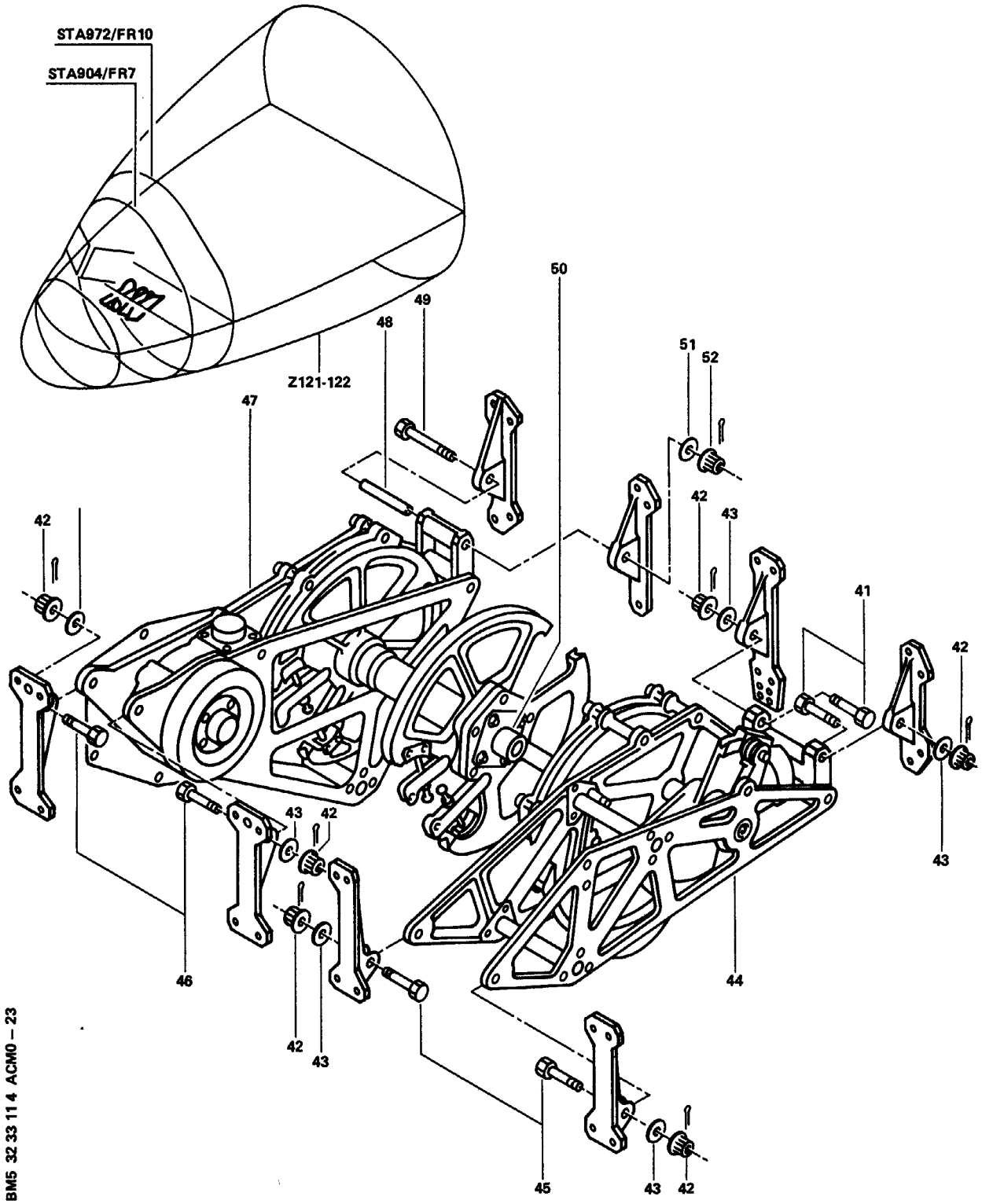
(5)On mechanical center pedestal 9VU :
- make certain that **PARKING BRAKE** control handle is in normal (released) position.

(6)Position safety barriers prohibiting access to door and gear travel ranges.
WARNING : MAKE CERTAIN THAT THE DOOR TRAVEL RANGES ARE CLEAR.
(7)Open main and nose gear doors (Ref. 32-12-11, P. Block 301 and 32-22-11, P. Block 301).
WARNING : WHEN DOORS ARE OPEN, MAKE CERTAIN THAT SAFETY COLLARS ARE POSITIONED ON DOOR ACTUATING CYLINDERS.
(8)Depressurize Green hydraulic system (Ref. 29-10-00, P. Block 301) and prohibit its pressurization by displaying a warning notice :
- on Green system ground connectors
- on panel 427VU to prohibit energization of Green electric pumps (ELEC PUMPS pushbutton switch).
(9)Depressurize Yellow hydraulic system (Ref. 29-10-00, P. Block 301) and prohibit its pressurization by displaying a warning notice :
- on Yellow system ground connectors
- on panel 427VU to prohibit energization of Yellow power transfer unit (RH PTU pushbutton switch).
(10)Depressurize Green and Yellow hydraulic reservoirs (Ref. 29-14-00, P. Block 301) and prohibit their pressurization by displaying a warning notice :
- on panel 429VU to prohibit APU starting
- on hydraulic reservoir pressurization connectors.
(11)Release pressure from braking accumulators (3125 and 3126) using pressure relief valve (3060) manual control and prohibit their charging by displaying a warning notice on panel 9VU, on PARKING BRAKE/ACCU PRESS pushbutton switch.
(12)On fuselage, open door 811. Open door 132AZ.
(13)In zone 212, remove floor panel HP to gain access to Free Fall extension control box.
(14)Remove nose and main gear Free Fall extension control cables (Ref. 32-33-26, P. Block 401).
(15)Remove parking brake control cables (Ref. Fig. 401)
(a)Remove cable (29) from cable quadrant.
1 Disconnect sliding end (30) from clevis (22) ; remove cotter pin and nut (20), retain washer (21) and remove bolt (23).
2 Remove cotter pin and nut (25), retain washer (24), remove bolt (28) and then disengage cable (29) and retain spacer (27).
(b)Remove cables (18) and (19) from cable quadrant.
1 Install rigging pin 98A27901009000 in cable quadrant (1).
2 In zone 124 at STA1187 (FR14A) :
- install rigging pin 98A32301002000 in cable quadrant (3).
3 In zone 122 at STA1212 (FR15) :
- disengage pins from cable tension regulators and unscrew regulators.
4 Remove cable guides (12) and (15) from quadrants (13) and (14). To this end, unscrew screws (10) and (17), retain washers (11) and (16) and then disengage cable guides (12) and (15).
5 Remove cables (18) and (19) from quadrants (14) and (13).

B. Removal
(1)Remove the secondary control assembly (Ref. Fig. 402).
(a)Remove cotter pins and screws (42) and retain washers (43).



Parking Brake Control Cables
Figure 401



Secondary Control Assembly - Removal/Installation
Figure 402

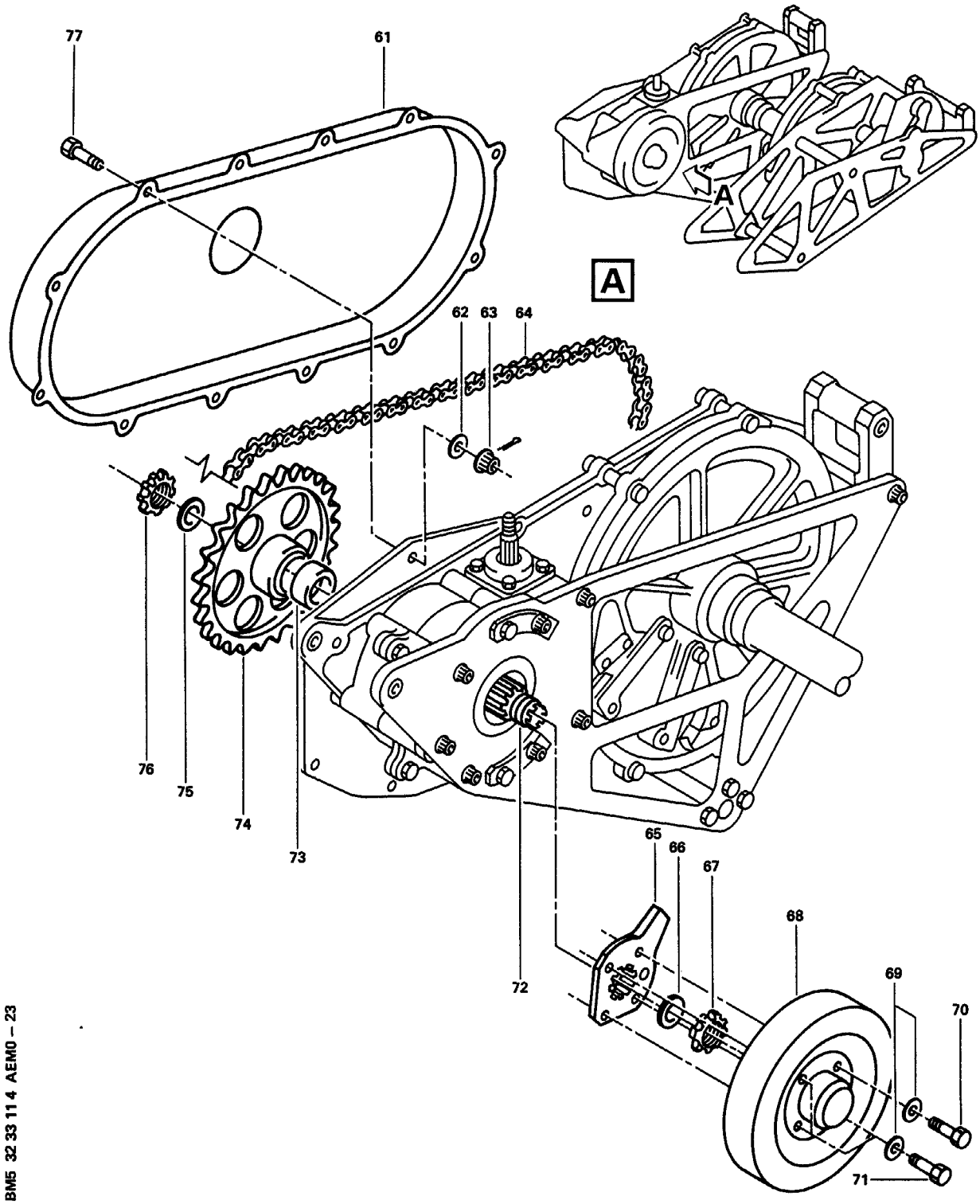
(b)Remove cotter pin and nut (52), retain washer (51) and leave bolt (49) in position.
(c)Hold secondary control assembly, identify location and remove screws (41), (45) and (46).
(d)Pivot secondary control assembly downwards around screw (49) to disengage parking brake control fairing (44) from attach fittings.
(e)Disconnect parking brake control box (44) from Free Fall extension control box (47) at level of bearing (50).
(f)Hold Free Fall extension control box (47), remove screw (49) and disengage box (47) from its attach fittings.

(2)Disconnect control box transmission/cable quadrant shaft (Ref. Fig. 403).
(a)Remove casing (61)
1 Remove cotter pins and nuts (63), retain washers (62) and disengage bolts (77).
2 Remove casing (61).
(b)Remove chain sprocket (74).
1 Remove chain (64).
2 Cut and remove lockwire ; remove castellated nut (76) and retain washer (75).
3 Remove chain sprocket (74) and spacer (73).
(c)Remove stop lever (65).
1 Cut and remove lockwire ; identify and remove screw (70) and retain washer (69).
2 Cut and remove lockwire ; identify and remove screws (71) and retain washers (69).
3 Remove cover (68).
4 Cut and remove lockwire ; remove castellated nut (67) and retain washer (66).
5 Remove stop lever (65) from splined shaft (72).

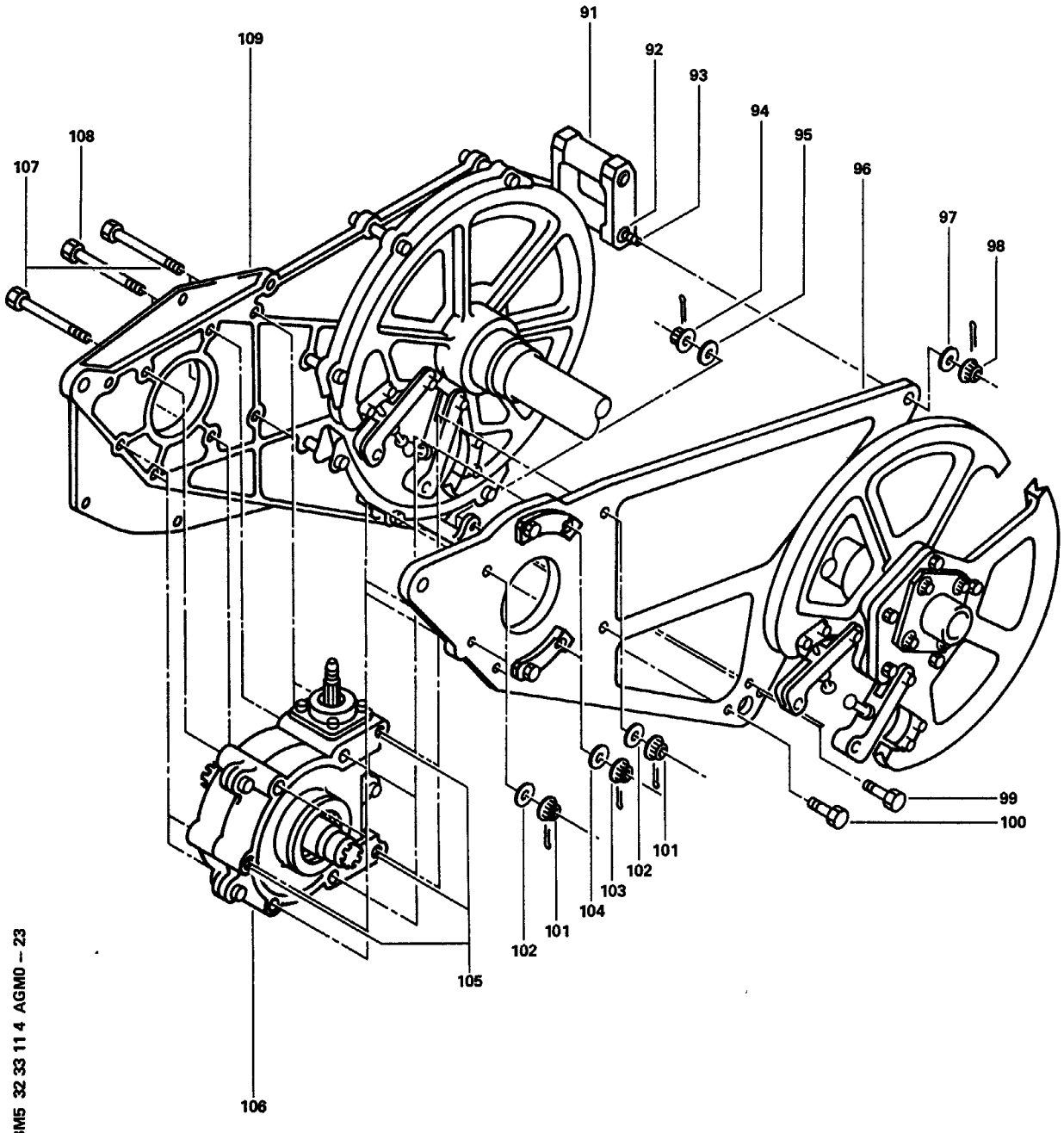
(3)Remove Free Fall extension secondary control box (106) (Ref. Fig. 404).
(a)Remove cotter pin and nut (98), retain washer (97), remove bolt (93) and disengage support (91).
(b)Remove cotter pins and nuts (94), retain washers (95), identify and remove bolts (99) and (100).
(c)Remove cotter pins and nuts (101), retain washers (102), identify and remove bolts (107).
(d)Remove cotter pins and nuts (103), retain washers (104), identify and remove bolts (108).
(e)Disengage flange (96) and remove secondary control box (106).

C. Preparation of Replacement Component
(1)Depreserve replacement control box by removing external protections. Clean using Material No. 11-002 and dry with dry air.
(2)Clean all items using Material No. 11-002 and dry with dry compressed air.
(3)Make certain that replacement items are in good condition.

D. Installation
(1)Install Free Fall extension secondary control box (106) (Ref. Fig. 404).
(a)Make certain that spacers (105) are positioned on control box (106).



Transmission of Secondary Control Box
Figure 403



Free Fall Extension Secondary Control Box - Removal/Installation
Figure 404

(b)Engage and position control box (106) on flange (109).
(c)Make certain that spacer (92) is positioned on support (91) ; position support (91) and engage bolt (93).
(d)Install flange (96) on control box (106) and engage it on bolt (93) ; install washer (97), screw and tighten nut (98) and safety with cotter pin.
(e)Install bolts (108), position washers (104) ; screw and tighten nuts (103) and safety with cotter pins.
(f)Install bolts (107), and washers (102) ; screw and tighten nuts (101) and safety with cotter pins.
(g)Install bolts (99) and (100) as per initial location, and washers (95) ; screw and tighten nuts (94) and safety with cotter pins.

(2)Connect control box transmission/cable quadrant shaft (Ref. Fig. 403).
(a)Install chain sprocket (74).
1 Coat splined shaft (72) on chain sprocket side with Material
R No. 04-004 or Material No. 04-022.
R NOTE : Do not mix Material No. 04-004 with Material No. 04-022.
R You can use Material No. 04-022 as an alternative to
R Material No. 04-004. Clean and degrease the parts before you
R use Material No. 04-022.
2 Install spacer (73) on splined shaft.
3 Install chain sprocket (74) on splined shaft (72).
4 Install washer (75), screw castellated nut (76) and torque to 2 m.daN (14.75 lbf.ft) ; safety nut with lockwire.
5 Install chain (64).
6 Install casing (61), and bolts (77), position washers (62) ; screw and tighten nuts (63) and safety with cotter pins.
(b)Install stop lever (65).
1 Coat splined shaft (72) on stop lever side with Material No. 04-004
R or Material No. 04-022.
R NOTE : Do not mix Material No. 04-004 with Material No. 04-022.
R You can use Material No. 04-022 as an alternative to
R Material No. 04-004. Clean and degrease the parts before you
R use Material No. 04-022.
2 Install stop lever (65) on splined shaft (72).
CAUTION : A FOOL-PROOFING DEVICE ON SHAFT AND LEVER ENABLES CORRECT POSITIONING OF LEVER.
3 Install washer (66), screw castellated nut (67) and torque to 2 m.daN (14,75 lbf.ft) ; safety nut with lockwire.
4 Engage cover (68), screw and tighten screws (70) and (71) equipped with washers (69). Safety screws with lockwire.

(3)Install the secondary control assembly on the aircraft (Ref. Fig. 402).
(a)Make certain that spacer (48) is positioned on its support.
(b)Install Free Fall extension control box (47) ; install bolt (49), washer (51) and tighten nut (52) by a few turns without tightening in order to hold Free Fall extension control box (47) so that parking brake control box (44) can be engaged freely.
(c)Connect parking brake control box (44) to Free Fall extension control box (47) at level of bearing (50).
(d)Position parking brake control box (44) and Free Fall extension control box (47) in their attach fittings.

1 Engage bolts (46), (45) and (41), install washers (43), screws and tighten nuts (42) and safety with cotter pins.
2 Screw and tighten nut (52) and safety with cotter pin.

(4)Install parking brake control cables (Ref. Fig. 401)

(a)Install cables (18) and (19) in cable quadrants.

1 Install cables (18) and (19) in their respective cable quadrant (14) and (13).
2 Position cable guide (12) on quadrant (13) ; install screws (10) equipped with washers (11), and tighten screws (10).
3 Position cable guide (15) on quadrant (14) ; install screws (17) equipped with washers (16), and tighten screws (17).
4 In zone 122 at STA1212 (FR15) :
engage cable ends in cable tension regulators.
Progressively screw regulators to adjust cable tension (Ref. 32-45-00, P. Block 501, Para. 1 step D.(2)).
5 Safety cable tension regulators with pins. Check for proper engagement of pins in regulator holes.
6 Check that cables are correctly installed over their entire length.
7 In zone 124, remove rigging pin 98A32301002000.

(b)Install cable (29) in cable quadrant.

1 Immobilize parking brake control bellcrank (22) by means of rigging pin 98A27901009000.
2 Install cable (28) on support (26), position shim (27), engage bolt (28), install washer (24) ; screw and tighten nut (25) and safety with a cotter pin.
3 Connect sliding end (30) to bellcrank (22).
- If required, adjust length of control by acting on sliding end (30).
- Engage pin (23), install washer (21) ; screw and tighten nut (20) and safety with a cotter pin.

NOTE : Install pin (23) with head opposite to A/C centerline.

4 Remove rigging pin 98A27901009000.
5 Install nose and main gear Free Fall extension control cables (Ref. 32-33-26, P. Block 401).

E. Test

(1)Carry out functional test of landing gear Free Fall extension (Ref. 32-33-00, P. Block 501).
(2)Carry out test of parking/ultimate emergency braking (Ref. 32-45-00, P. Block 501).

F. Close-Up

(1)Make certain that working area is clean and clear of tools and miscellaneous items of equipment.
(2)In zone 212, install floor panel HP.
(3)Close doors 132AZ and 811.
(4)Pressurize Green and Yellow hydraulic reservoirs (Ref. 29-14-00, P. Block 301).

WARNING : MAKE CERTAIN THAT DOOR TRAVEL RANGES ARE CLEAR.

(5)Close main and nose gear doors (Ref. 32-12-11, P. Block 301 and 32-22-11, P. Block 301).
(6)Remove warning notices.

(7)Remove safety barriers and access platform.
(8)Remove all ground handling and maintenance equipment, standard and special tools, together with ground power and replenishing equipment, all access equipment and miscellaneous items.

R LANDING GEAR FREE FALL CUTOUT VALVE (1235) - REMOVAL/INSTALLATION

WARNING : CHECK THAT THE LANDING GEAR GROUND SAFETIES INCLUDING WHEEL CHOCKS ARE IN POSITION.
BEFORE APPLYING OR RELIEVING HYDRAULIC SYSTEM PRESSURE, MAKE CERTAIN THAT THE TRAVEL RANGES OF THE CONTROL SURFACES ARE CLEAR.
BEFORE PRESSURIZING HYDRAULIC SYSTEM, CHECK THAT ALL CONTROLS ARE SET TO CORRESPOND WITH THE ACTUAL POSITION OF THE SERVICES THEY OPERATE.
BEFORE POWER IS SUPPLIED TO THE AIRCRAFT MAKE CERTAIN THAT ELECTRICAL CIRCUITS UPON WHICH WORK IS IN PROGRESS ARE ISOLATED.
BEFORE PRESSURIZING HYDRAULIC SYSTEMS MAKE CERTAIN THAT HYDRAULIC SYSTEM UNDER MAINTENANCE HAS BEEN ISOLATED.

1. Equipment and Materials

ITEM	DESIGNATION
A. 98A32101005000	Pin - Rigging, Main Gear Emergency Control Selector
B. 98A32301006000	Pin - Rigging, Landing Gear Emergency Lowering Control
C.	Access Platform 2.60 m (8 ft. 7 in.)
D.	Safety Barriers
E.	Hydraulic Fluid Container
F.	Blanking Plugs
G.	Wheel Chocks
H.	Circuit Breaker Safety Clips
J.	Warning Notices
Referenced Procedures	
- 12-12-29, P. Block 1	Hydraulics
- 29-10-00, P. Block 301	Main Hydraulic Power - Pressurization/ Depressurization
- 29-14-00, P. Block 301	Hydraulic Reservoir Pressurizing System
- 32-12-11, P. Block 301	Main Gear Main Door - (Ground Door(s) Opening)
- 32-33-00, P. Block 501	Free Fall Extension

2. Procedure

A. Job Set-Up
(1)Make certain that wheel chocks are in position.
(2)On panel 4VU
- make certain that landing gear control lever is in **DOWN** position and prohibit its operation by displaying a warning notice.
(3)Between First Officer's and Third Occupant's seats
- make certain that landing gear Free Fall extension control handle is in Normal position and prohibit its operation by displaying a warning notice.
(4)Open, safety and tag the following circuit breaker :

PANEL	SERVICE	IDENT.	LOCATION
133VU	HYDRAULIC/ELEC/PUMPS/WARN	4GE	331/V60

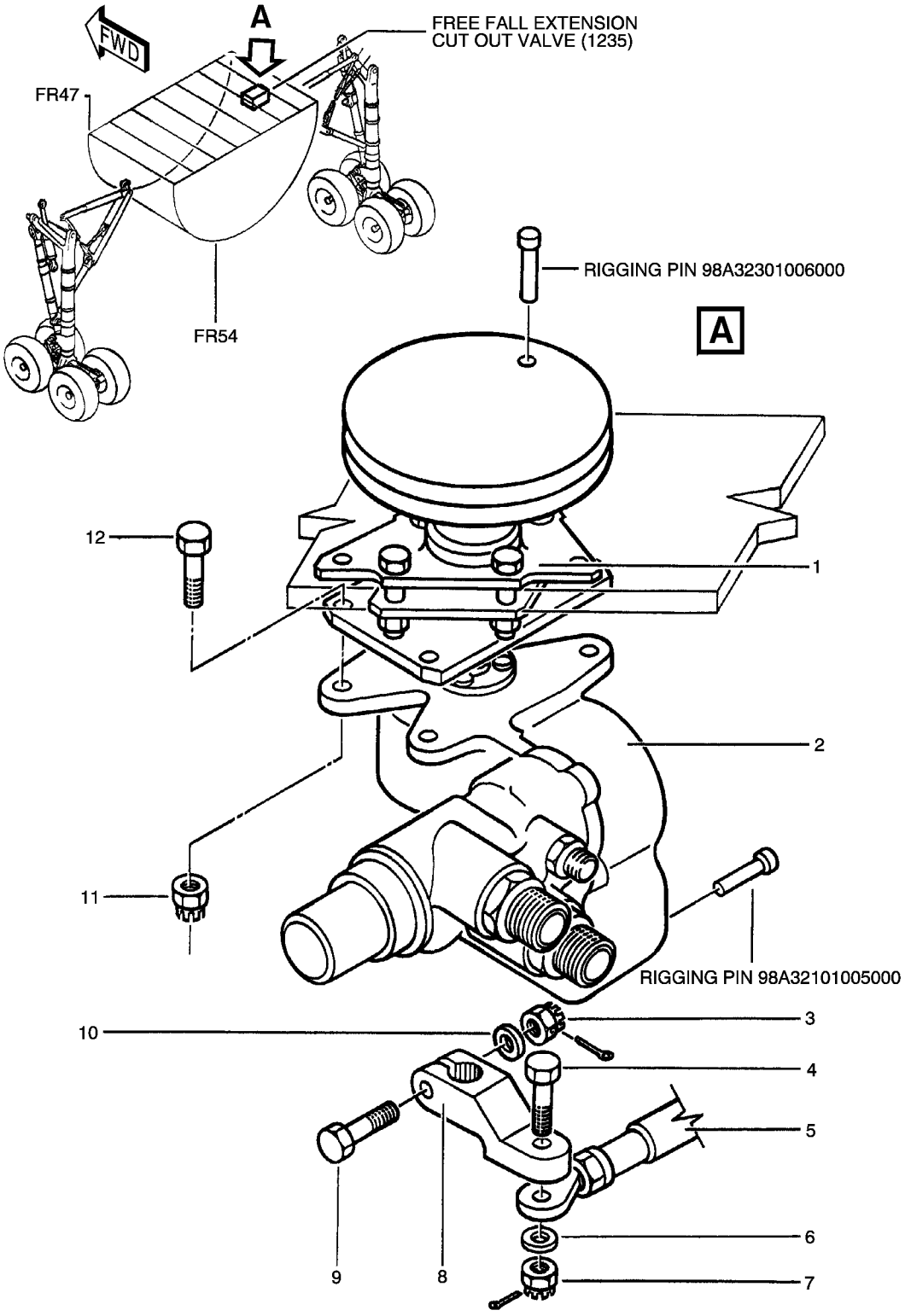
(5)Position safety barriers prohibiting access to right main gear door travel range.
WARNING : MAKE CERTAIN THAT GEAR DOOR TRAVEL RANGE IS CLEAR
(6)Open right main gear door (Ref. 32-13-11, P. Block 301).
WARNING : WHEN DOOR IS OPEN, MAKE CERTAIN THAT SAFETY COLLAR IS POSITIONED ON DOOR ACTUATING CYLINDER.
(7)Depressurize Green hydraulic reservoir (Ref. 29-14-00, P. Block 301) and prohibit its pressurization by displaying a warning notice
- on panel 429VU to prohibit APU starting
- on reservoir pressurization connector.
(8)Depressurize Green hydraulic system (Ref. 29-10-00, P. Block 301) and prohibit its pressurization by displaying a warning notice
- on Green hydraulic system ground connectors
- on panel 427VU, to prohibit operation of Green electric pumps (ELEC PUMPS pushbutton switch).
(9)In zone 242, remove floor panel RF
(10)In zone 242, install rigging pin 98A32301006000 through cutout valve 1235 control pulley and mounting flange.
(11)In zone 148, position hydraulic fluid container under the component to be removed.
CAUTION : MAKE CERTAIN THAT NO HYDRAULIC GROUND POWER CART IS CONNECTED TO GREEN SYSTEM

B. Removal

R (Ref. Fig. 401)
(1)Mark and disconnect hydraulic lines. Blank open lines ends and cutout valve (2) ports.
(2)Disconnect rod (5) from lever (8). Remove cotter pin, nut (7), washer (6) and bolt (4).
(3)Support cutout valve (2) to be removed
(4)Remove nuts (11) and bolts (12).
(5)Remove cutout valve (2)
(6)Remove lever (8) from cutout valve (2). Remove cotter pin, nut (3), washer (10) and bolt (9). Remove lever (8).

C. Preparation of Replacement Component

NOTE : Replacement component is filled with aircraft system hydraulic fluid (Ref. 20-31-00)
(1)Depreserve replacement component, remove protective coverings and check for correct condition.
(2)Transfer lever (8) from removed to replacement cutout valve (2)
- position lever (8) on cutout valve splined spindle
NOTE : Lever-to-splined spindle attachment is foolproofed. A double width tooth and corresponding groove ensures correct positioning.
Install bolt (9), washer (10) and nut (3). Safety with cotter pin.
(3)Install rigging pin 98A32101005000 on cutout valve (2).



Landing Gear Free Fall Cutout Valve 1235
Removal/Installation
Figure 401

R

NOTE : This rigging procedure serves only to maintain replacement cutout valve (2) in position for installation.

(4)Transfer hydraulic connectors etc from removed to replacement component after making certain that they are clean and in correct condition. Install new seals.

D. Installation

(1)Install replacement cutout valve (2) engaging splines and hold in position

NOTE : Flange (1)-to-replacement component attachment is foolproofed. A double width tooth and corresponding groove ensures correct positioning.

(2)Install cutout valve (2) on mounting flange (1). Install bolts (12), nuts (11).

(3)Remove rigging pin 98A32101005000

(4)Connect rod (5) to lever (8). Install bolt (4) and washer (6). Install and safety nut (7).

(5)Remove blanking plugs/caps from hydraulic lines and connect hydraulic lines.

(6)In zone 242, remove rigging pin 98A32301006000.

E. Test

(1)Carry out landing gear Free Fall extension operational test (Ref. 32-33-00, P. Block 501).

(2)Carefully check cutout valve 1235 for leakage when pressurizing system and upon completion of tests.

F. Close-Up

(1)In zone 242, install floor panel RF

(2)Remove hydraulic fluid container from zone 148

(3)Make certain that working area is clean and clear of tools and miscellaneous items of equipment.

(4)Remove warning notices

(5)Remove safety clips and tag and close circuit breaker 4GE

(6)Check hydraulic fluid level in Green reservoir and replenish as required (Ref. 12-12-29, P. Block 1)

(7)Pressurize Green hydraulic reservoir (Ref. 29-14-00, P. Block 301).

WARNING : MAKE CERTAIN THAT DOOR TRAVEL RANGES ARE CLEAR

(8)Close right main gear door (Ref. 32-12-11, P. Block 301)

(9)Close access doors, remove access platform and safety barriers

(10)Remove all ground handling and maintenance equipment standard and special tools, together with ground power and replenishing equipment, all access equipment and miscellaneous items.

NOSE GEAR VENT VALVE (1260) - REMOVAL/INSTALLATION

WARNING : CHECK THAT THE LANDING GEAR GROUND SAFETIES INCLUDING WHEEL CHOCKS ARE IN POSITION.
BEFORE APPLYING OR RELIEVING HYDRAULIC SYSTEM PRESSURE, MAKE CERTAIN THAT THE TRAVEL RANGES OF THE CONTROL SURFACES ARE CLEAR.
BEFORE PRESSURIZING HYDRAULIC SYSTEMS, CHECK THAT ALL CONTROLS ARE SET TO CORRESPOND WITH THE ACTUAL POSITION OF THE SERVICES THEY OPERATE.
BEFORE PRESSURIZING HYDRAULIC SYSTEMS, MAKE CERTAIN THAT HYDRAULIC SYSTEM UNDER MAINTENANCE HAS BEEN ISOLATED.
BEFORE POWER IS SUPPLIED TO THE AIRCRAFT, MAKE CERTAIN THAT ELECTRICAL CIRCUITS UPON WHICH WORK IS IN PROGRESS ARE ISOLATED.

1. Equipment and Material

ITEM	DESIGNATION
A. 97A29102035000	Connector - Pressurizing, Hydraulic Tank
B. 97A29102062000	Connector - Depressurizing, Hydraulic Tank
C. 99A29001006000	Unit - Topping Up, Hydraulic Tank (Hand Operated)
D. 98A32301007000	Pin - Rigging, Landing Gear Emergency Lowering Control
E. 98A32301000000	Pin - Rigging, Nose Gear Emergency Lowering Control
F.	Access Platforms (2 m - 2.60 m) (6 ft. 7 in. - 8 ft. 7 in.)
G.	Hydraulic Fluid Container
H.	Safety Barriers
J.	Blanking Plugs
K.	Warning Notices
M. Material No. 11-002	Cleaning Agents (Ref. 20-31-00)
Referenced Procedures	
- 12-12-29, P. Block 1	Hydraulic Reservoir Replenishing
- 29-10-00, P. Block 301	Main Hydraulic Power-Pressurization/ Depressuration
- 29-14-00, P. Block 301	Hydraulic Reservoir-Pressurization/Depressurization
- 32-12-11, P. Block 301	Main Gear Main Door (Ground Door(s) Opening)
- 32-22-11, P. Block 301	Nose Gear Main Door (Ground Door(s) Opening)
- 32-33-00, P. Block 501	Free Fall Extension

2. Procedure

A. Job Set-Up
(1)On panel 4VU
- make certain that landing gear control lever is in **DOWN** position and prohibit its operation by displaying a warning notice.

(2)Between First Officer's and Third Occupant's seats

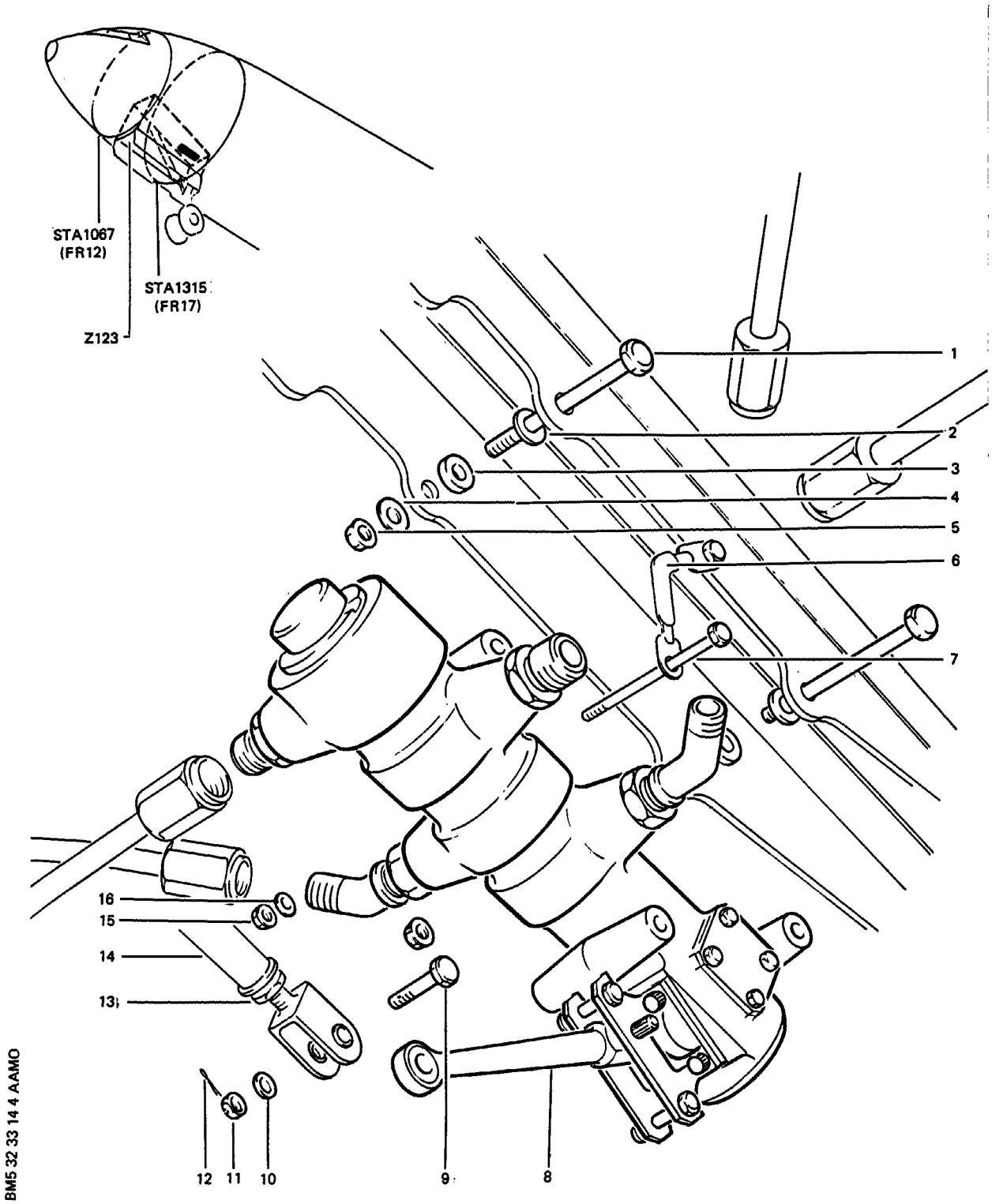
- make certain that landing fear Free Fall extension control handle is in Normal position.

(3)Position access platforms.
(4)Position safety barriers prohibiting access to gear door travel ranges.
WARNING : MAKE CERTAIN THAT DOOR TRAVEL RANGES ARE CLEAR.
(5)Open main gear RH door and nose gear doors (Ref. 32-12-11, P. Block 301 and 32-22-11, P. Block 301).
WARNING : WHEN DOORS ARE OPEN MAKE CERTAIN THAT SAFETY COLLARS ARE POSITIONED ON DOOR ACTUATING CYLINDERS.
(6)Depressurize Green hydraulic reservoir (Ref. 29-14-00, P. Block 301) and prohibit its pressurization by displaying a warning notice :
- on panel 429VU to prohibit APU starting
- on reservoir pressurization connector.
(7)Depressurize Green hydraulic system (Ref. 29-10-00, P. Block 301) and prohibit its pressurization by displaying a warning notice.
- On Green hydraulic system ground connectors on panel 427VU to prohibit operation of Green electric pumps (ELEC PUMPS pushbutton switch).
(8)Position hydraulic fluid container.

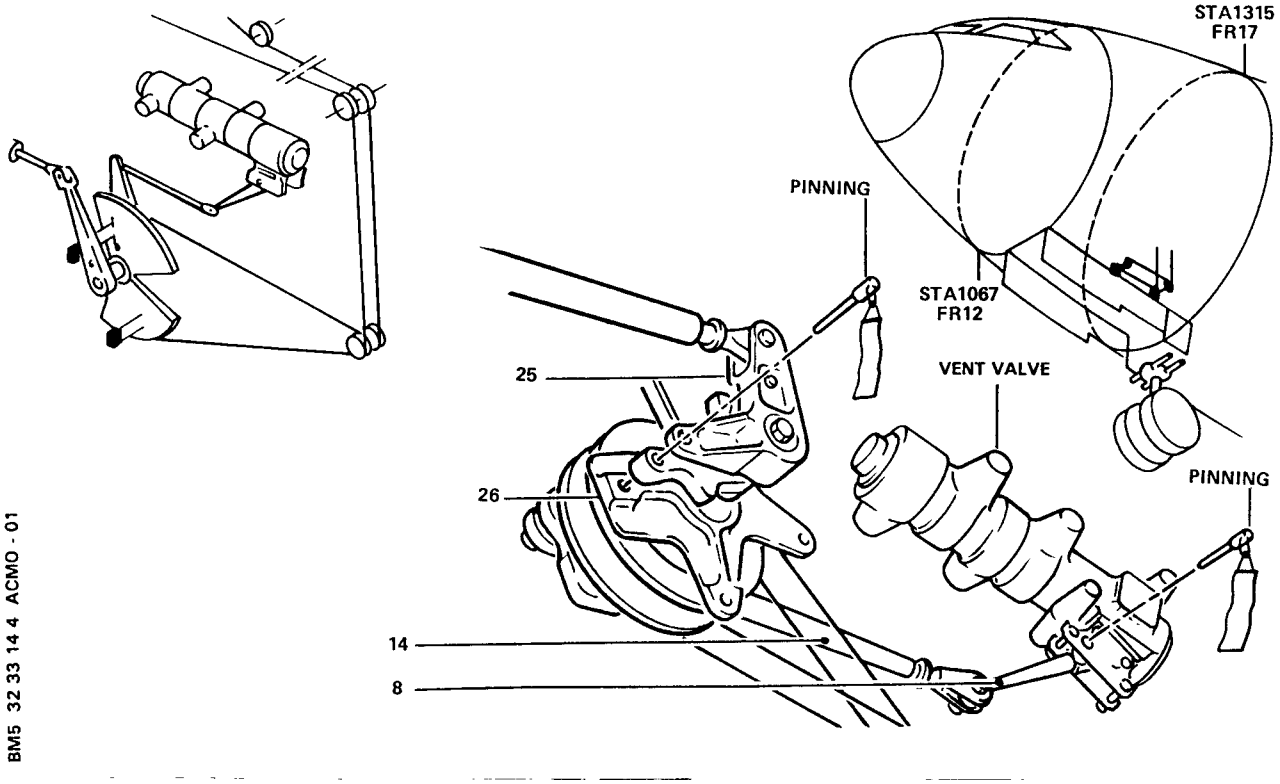
B. Removal
(Ref. Fig. 401)
(1)Disconnect bonding jumper (6), (nut (7), washer (16), bolt (15).
(2)Mark, disconnect and blank off hydraulic lines.
(3)Disconnect rod (14) from lever (8), cotter pin (12), nut (11) washer (10), bolt (9).
(4)Remove nut (5), washers (4) (3) (2) and bolt (1). Mark location of washers (2) and (3).
Remove vent valve.

C. Preparation of Replacement Component
NOTE : Replacement vent valve is filled with aircraft system hydraulic fluid (Ref. 20-31-00).
(1)Depreserve replacement valve.
(2)Clean replacement valve with Material No.11-002, and dry with filtered compressed air.
(3)Transfer hydraulic connectors etc. from removed to replacement valve after making certain that they are clean and in correct condition.
Install new seals.

D. Installation
(Ref. Fig. 401)
(Ref. Fig. 402)
(1)Install valve with bolt (1), washers (2) (3) (4) and nut (5).
(2)Install rigging pin 98A32201007000 in lever (8).
(3)Connect rod (14) to lever (8) with bolt (9) washer (10) and nut (11).
Safety nut with cotter pin (12).
(4)Check that rigging pin 98A32301000000 can be readily installed in lever (25) and quadrant (26).
If necessary, cut and remove lockwire, slacken locknuts (13) and adjust length of rod until rigging pin can be readily installed. Tighten nuts and wirelock.



Nose Gear Vent Valve Attachments
Figure 401



Nose Gear Vent Valve Adjustment
Figure 402

R

(5)Remove rigging pins.
(6)Connect hydraulic lines.
(7)Connect bonding jumper (6) with bolt (7), washer (16), nut (15).

E. Tests
(1)Carry out a landing gear Free Fall extension functional test (Ref. 32-33-00, P. Block 501).
Carefully check for leakage when pressurizing system and upon completion of tests.

F. Close-Up
(1)Remove hydraulic fluid container.
(2)Make certain that working area is clean and clear of tools and miscellaneous items of equipment.
(3)Pressurize hydraulic reservoirs (Ref. 29-14-00, P. Block 301).
WARNING : MAKE CERTAIN THAT DOOR TRAVEL RANGES ARE CLEAR.
(4)Close landing gear doors (Ref. 32-12-11, P. Block 301 or 32-22-11, P. Block 301).
(5)Replenish hydraulic reservoirs if necessary (Ref. 12-12-29, P. Block 1).
(6)Remove warning notices.
(7)Close access doors, remove access platforms and safety barriers.
(8)Remove all ground handling and maintenance equipment standard and special tools, together with ground power and replenishing equipment, all access equipment and miscellaneous items.

R MAIN GEAR VENT VALVE (1224-1225) - REMOVAL/INSTALLATION

WARNING : CHECK THAT THE LANDING GEAR GROUND SAFETIES INCLUDING WHEEL CHOCKS ARE IN POSITION.
BEFORE APPLYING OR RELIEVING HYDRAULIC SYSTEM PRESSURE, MAKE CERTAIN THAT THE TRAVEL RANGES OF THE CONTROL SURFACES ARE CLEAR.
BEFORE PRESSURIZING HYDRAULIC SYSTEMS, CHECK THAT ALL CONTROLS ARE SET TO CORRESPOND WITH THE ACTUAL POSITION OF THE SERVICES THEY OPERATE.
BEFORE PRESSURIZING HYDRAULIC SYSTEMS MAKE CERTAIN THAT HYDRAULIC SYSTEM UNDER MAINTENANCE HAS BEEN ISOLATED
BEFORE POWER IS SUPPLIED TO THE AIRCRAFT MAKE CERTAIN THAT ELECTRICAL CIRCUITS UPON WHICH WORK IS IN PROGRESS ARE ISOLATED.

1. Equipment and Material

ITEM	DESIGNATION
A. 99A29001006000	Unit-Topping Up, Hydraulic Tank (Hand Operated)
B. 97A29102035000	Connector-Pressurizing, Hydraulic Tank
C. 97A29102062000	Connector-Depressurizing, Hydraulic Tank
D. 98A32101004000	Pin-Rigging, Main Gear Hydraulic System Vent Valve
E. 98A27901011000	Pin-Rigging, Landing Gear Emergency Lowering Control
F.	Access Platform 2.60 m (8 ft. 7 in.)
G.	Blanking Plugs
H.	Warning Notice
J.	Hydraulic Fluid Container
K.	Safety Barriers
L. Material No. 11-002	Cleaning Agents (Ref. 20-31-00)
Referenced Procedures	
- 12-12-29, P. Block 1	Hydraulics
- 29-10-00, P. Block 301	Main Hydraulic Power-Pressurization/ Depressurization
- 29-14-00, P. Block 301	Hydraulic Reservoir-Pressurization/ Depressurization
- 32-12-11, P. Block 301	Main Gear Main Door (Ground Door(s) Opening)
- 32-33-00, P. Block 501	Free Fall Extension

2. Procedure

A. Job Set Up
(1)On panel 4VU
- make certain that landing gear control lever is in DOWN position and prohibit its operation by displaying a warning notice.

(2)Between First Officer's and Third Occupant's seats
- make certain that landing gear Free Fall extension control handle is in Normal position.

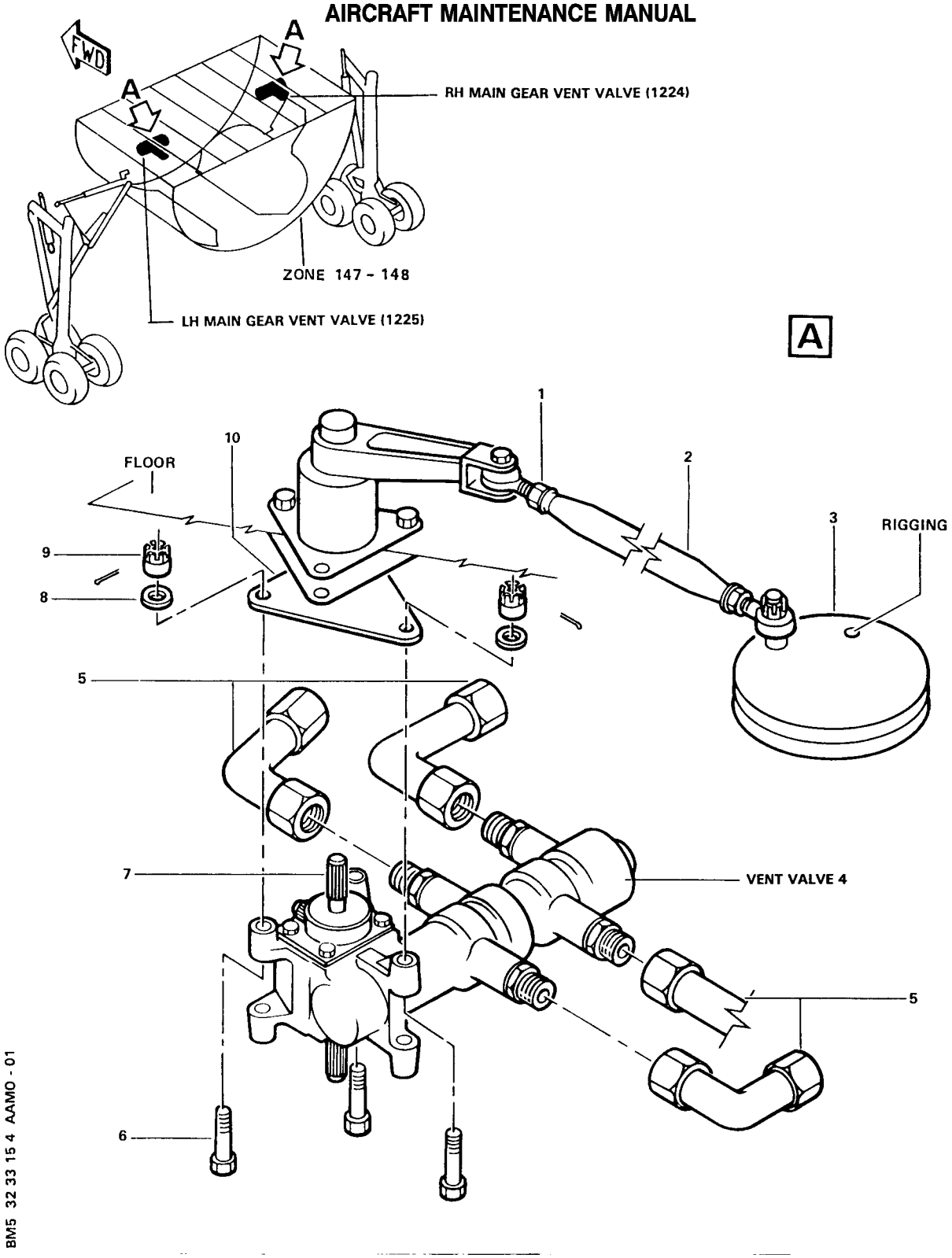
(3)Position access platform.

(4)Position safety barriers prohibiting access to relevant main landing gear door travel range.
WARNING : MAKE CERTAIN THAT DOOR TRAVEL RANGES ARE CLEAR.
(5)Open right or left main door depending on which vent valve is to be removed (Ref. 32-12-11, P. Block 301).
WARNING : WHEN DOORS ARE OPEN MAKE CERTAIN THAT SAFETY COLLARS ARE POSITIONED ON DOOR ACTUATING CYLINDERS.
(6)Depressurize Green hydraulic reservoir (Ref. 29-14-00, P. Block 301) and prohibit its pressurization by displaying a warning notice
- on panel 429VU, to prohibit APU starting
- on reservoir pressurization connector.
(7)Depressurize Green hydraulic system (Ref. 29-10-00, P. Block 301) and prohibit its pressurization by displaying a warning notice
- on Green hydraulic system ground connectors
- on panel 427VU to prohibit operation of Green electric pumps (ELEC PUMPS pushbutton switch).
(8)Remove furnishings from relevant zone.
(9)For removal of right valve, remove floor panel RF in zone 242 (for left valve floor panel RF in zone 241).
(10)Position hydraulic fluid container.

B. Removal
(Ref. Fig. 401)
(1)Mark, disconnect and blank off hydraulic lines.
(2)Remove vent valve
(a)Remove cotter pins and nuts (9), retain washers (8). Remove bolts (6).
(b)Remove the valve

C. Preparation of Replacement Component
NOTE : Replacement main gear vent valve is filled with aircraft system hydraulic fluid, (Ref. 20-31-00)
(1)Depreserve replacement valve.
(2)Clean all components with material No.11-002 and dry with filtered compressed air.
(3)Transfer hydraulic connectors etc from removed to replacement valve after making certain that they are clean and in correct condition. Install new seals.

D. Installation (Ref. Fig. 401)
(1)Install rigging pin 98A32101004000, in valve splined spindle (7).
(2)Install valve.
(a)Position valve (4) on its support (10).
NOTE : Lever block-to-splined spindle attachment is foolproofed by omission of one tooth on spline.
(b)Install bolts (6), washers (8), and nuts (9). Safety nuts with cotter pins (10).
(3)Adjust valve control
(a)With rigging pin 98A32101004000 still installed in splined spindle (7) check that rigging pin 98A27901011000 can be installed in pulley (3). If necessary, cut and remove lockwire, slacken locknuts (1) on rod (2) and adjust length until rigging pin can be installed in pulley (3).



Main Gear Vent Valve
Figure 401

R

Tighten nuts and wirelock.
(b)Remove rigging pins
(4)Remove blanking caps and connect hydraulic lines.

E. Test
(1)Carry out landing gear Free Fall extention functional test (Ref. 32-33-00, P. Block 501).
Carefully check vent valve for leakage when pressurizing system and upon completion of tests.

F. Close-Up
(1)Remove hydraulic fluid container.
(2)Make certain that working area is clean and clear of tools and miscellaneous items of equipment.
(3)In zones 241 (242) install floor panels.
(4)Install furnishings.
(5)Pressurize hydraulic reservoirs (Ref. 29-14-00, P. Block 301).
WARNING : MAKE CERTAIN THAT DOOR TRAVEL RANGES ARE CLEAR.
(6)Close landing gear doors (Ref. 32-12-11, P. Block 301).
(7)Replenish hydraulic reservoirs if necessary (Ref. 12-12-29, P. Block 1).
(8)Remove warning notices.
(9)Close access doors, remove access platform and safety barriers.
(10)Remove all ground handling and maintenance equipment, standard and special tools, together with ground power and replenishing equipment, all access equipment and miscellaneous items.

CABLE TENSION REGULATOR - REMOVAL/INSTALLATION

WARNING : CHECK THAT THE LANDING GEAR GROUND SAFETIES INCLUDING WHEEL CHOCKS ARE IN POSITION.

BEFORE APPLYING OR RELIEVING HYDRAULIC SYSTEM PRESSURE, MAKE CERTAIN THAT THE TRAVEL RANGES OF THE CONTROL SURFACES ARE CLEAR.
BEFORE PRESSURIZING HYDRAULIC SYSTEMS, CHECK THAT ALL CONTROLS ARE SET TO CORRESPOND WITH THE ACTUAL POSITION OF THE SERVICES THEY OPERATE.

BEFORE PRESSURIZING HYDRAULIC SYSTEMS, MAKE CERTAIN THAT HYDRAULIC SYSTEM UNDER MAINTENANCE HAS BEEN ISOLATED.

BEFORE POWER IS SUPPLIED TO THE AIRCRAFT MAKE CERTAIN THAT ELECTRICAL CIRCUITS UPON WHICH WORK IS IN PROGRESS ARE ISOLATED.

1. Equipment and Materials

ITEM	DESIGNATION
A. 98A27901014000	Pin - Rigging, Nose Gear Emergency Lowering Control
B. 98A32301007000	Pin - Rigging, Landing Gear Emergency Lowering Control
C. 98A32301016000	Pin - Rigging, Landing Gear Emergency Lowering Control
D.	Wedge - Locking, Main Landing Gear Emergency Control Cable Tension Regulator
E.	Access Platform 2 m (6 ft. 7 in.)
F.	Warning Notices
Referenced Procedure - 32-33-00, P. Block 501	Free Fall Extension

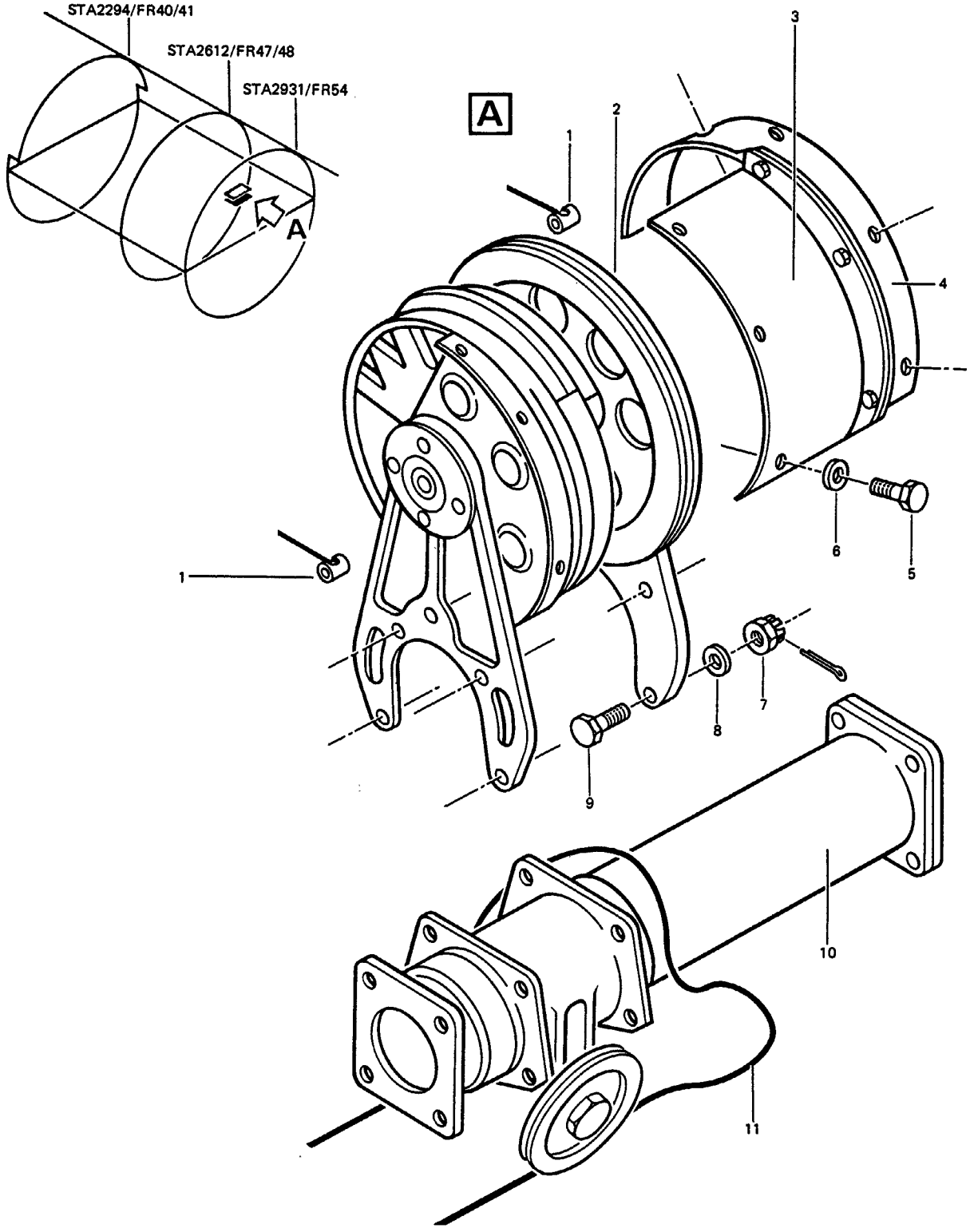
2. Procedure

A. Job Set-Up
(1) On panel 4VU
- make certain that landing gear control lever is in **DOWN** position and prohibit its operation by displaying a warning notice.

(2) Between First Officer's and Third Occupant's seats
- make certain that landing gear Free Fall extension control handle is in Normal position.

(3) Position access platform.
(4) In zone 242 remove floor panel 242CG to gain access to cable tension regulator.
(5) In zone 242 remove floor panel 242AG to gain access to cable turnbuckles, between FR38 and FR40.

B. Removal
(Ref. Fig. 401)



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Cable Tension Regulator
Figure 401

(1)Remove flanged plates (3) and (4)
- Remove screws (5)
- Retain washers (6) for reinstallation.

(2)In zone 121 at STA972(FR10) release tensioners located on cable quadrants until cable tension regulator control locking wedge can be installed. Install wedge.

(3)On turnbuckles located between STA2131(FR38) and STA2294(FR40) remove safety pins and release cable tension so as to remove cable end fittings from their housings.
Remove cables from regulator.

(4)On turnbuckles located at STA2665(FR49) remove safety pins and release cable tension. Remove cable (11) from pulley (2).

(5)Remove cable tension regulator from associated support tube (10).
(a)Remove cotter pins and nuts (7), retain washers (8) for reinstallation and remove bolts (9).
(b)Remove tension regulator.

C. Preparation of Replacement Component
(Ref. Fig. 402)

(1)Disassembly of removed regulator.
(a)Remove cotter pin and nut (26), collar (25) and pin (20).
(b)Remove side flanges (21) and (24) from regulator.
(c)Remove pulley (23) from regulator splined shaft, retain bush (22) for reinstallation.

(2)Depreserve replacement regulator and check for correct condition.

(3)Assembly of replacement regulator.
CAUTION : REPLACEMENT REGULATOR MUST BE FITTED WITH LOCKING WEDGE
(a)Install bush (22) and pulley (23) on regulator splined shaft.
NOTE : A blank (foolproofing) spline on the splined shaft ensures that pulley is always installed in the same position on regulator splined shaft.
(b)Install side flanges (21) and (24) on regulator.
(c)Install rigging pin 98A32301016000 in side flange (24) and pulley (23).
(d)Install pin (20), collar (25), nut (26) but do not tighten at this stage.

D. Installation

(1)With locking wedge and rigging pin installed on regulator, install regulator on support tube (10).

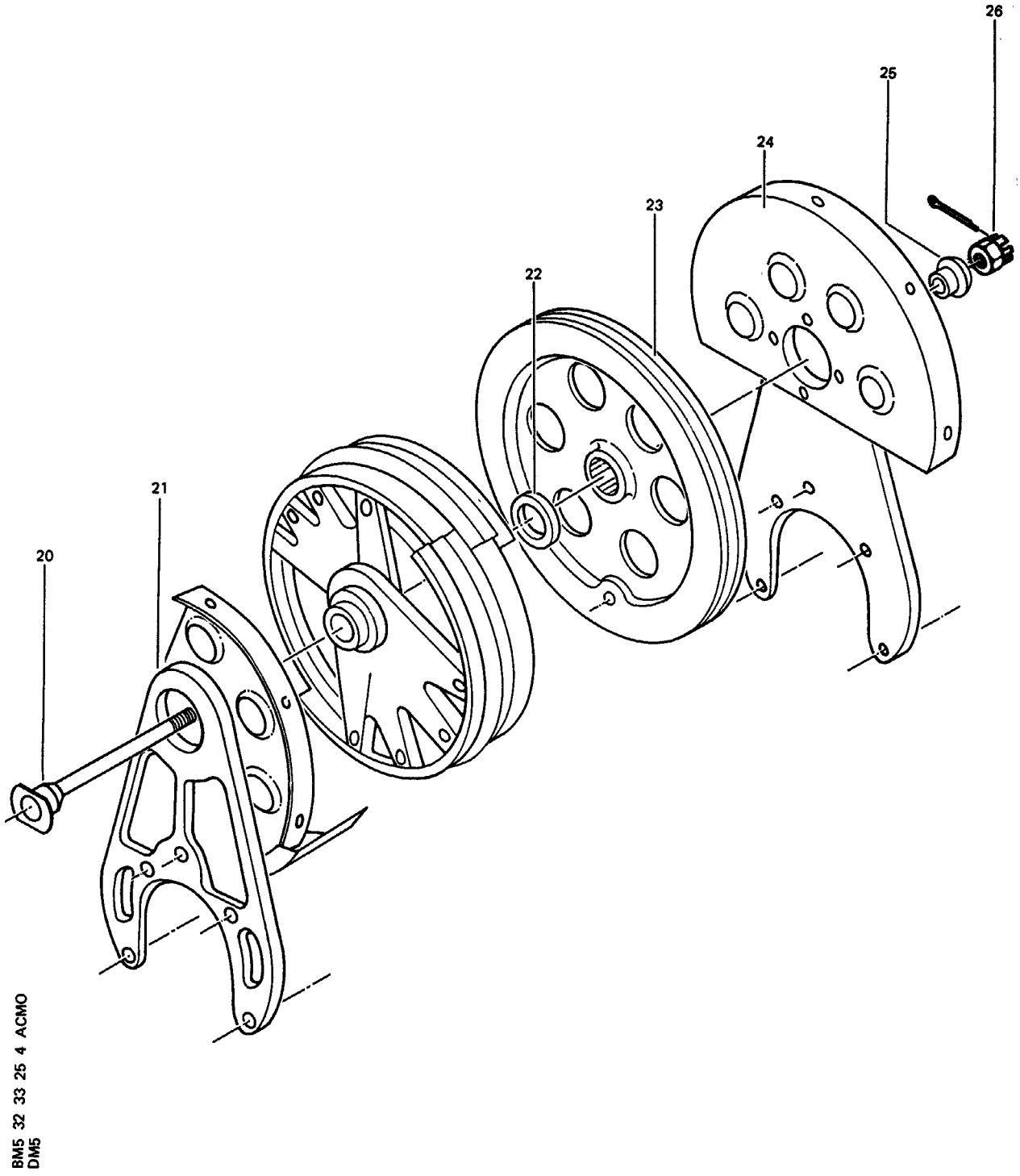
(2)Install bolts (9), washers (8) and nuts (7) safety with cotter pins.

(3)Fully tighten nut (26) and safety with cotter pin.

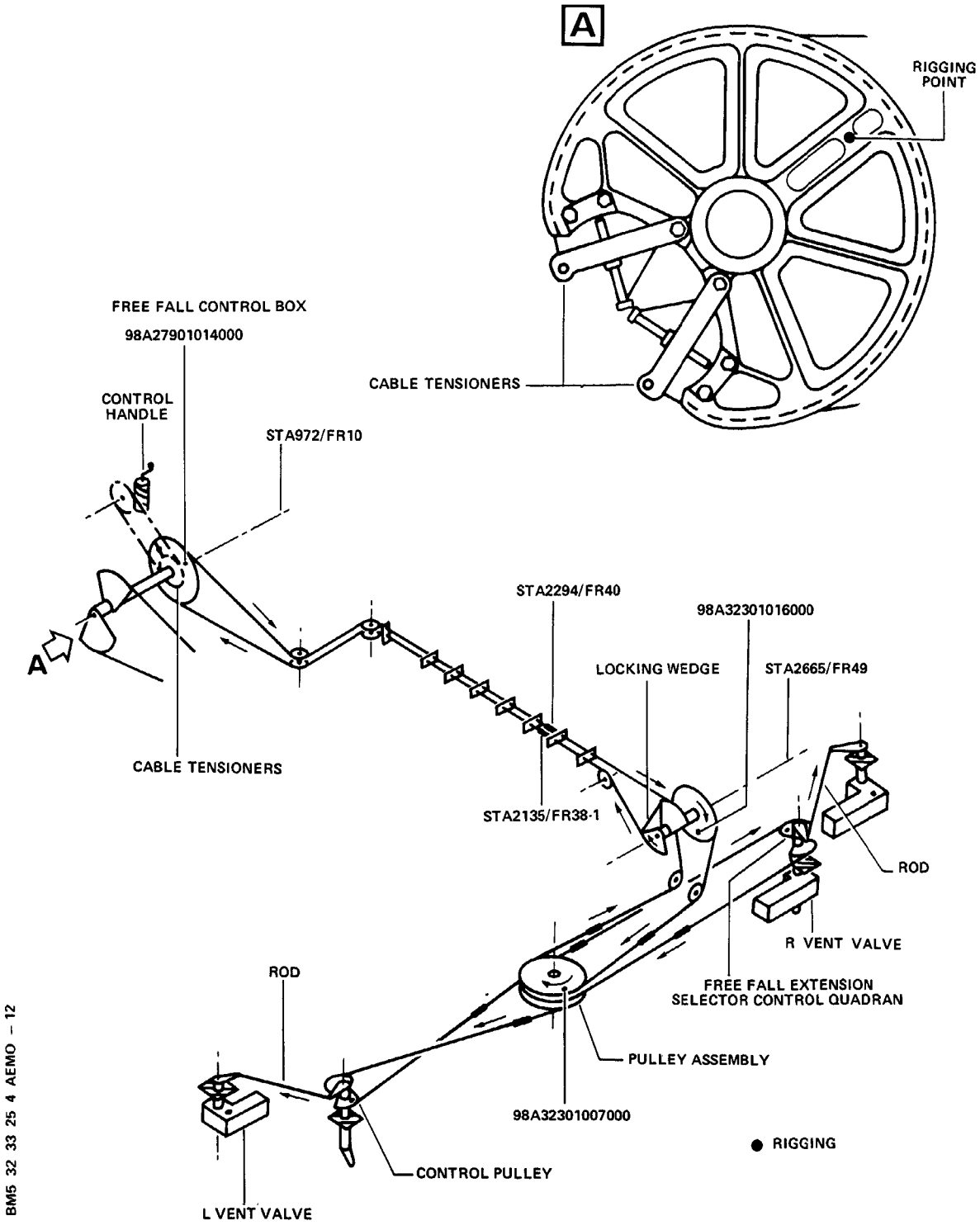
(4)Install cables and engage end fittings of each cable in their respective housings on cable quadrant. Adjust turnbuckles located between STA2131(FR38) and STA2294(FR40) until L = 275 mm (10.83 in.).
Safety turnbuckles with safety pins.

(5)Install cable in regulator pulley, tighten turnbuckles located at STA2665 (FR49)

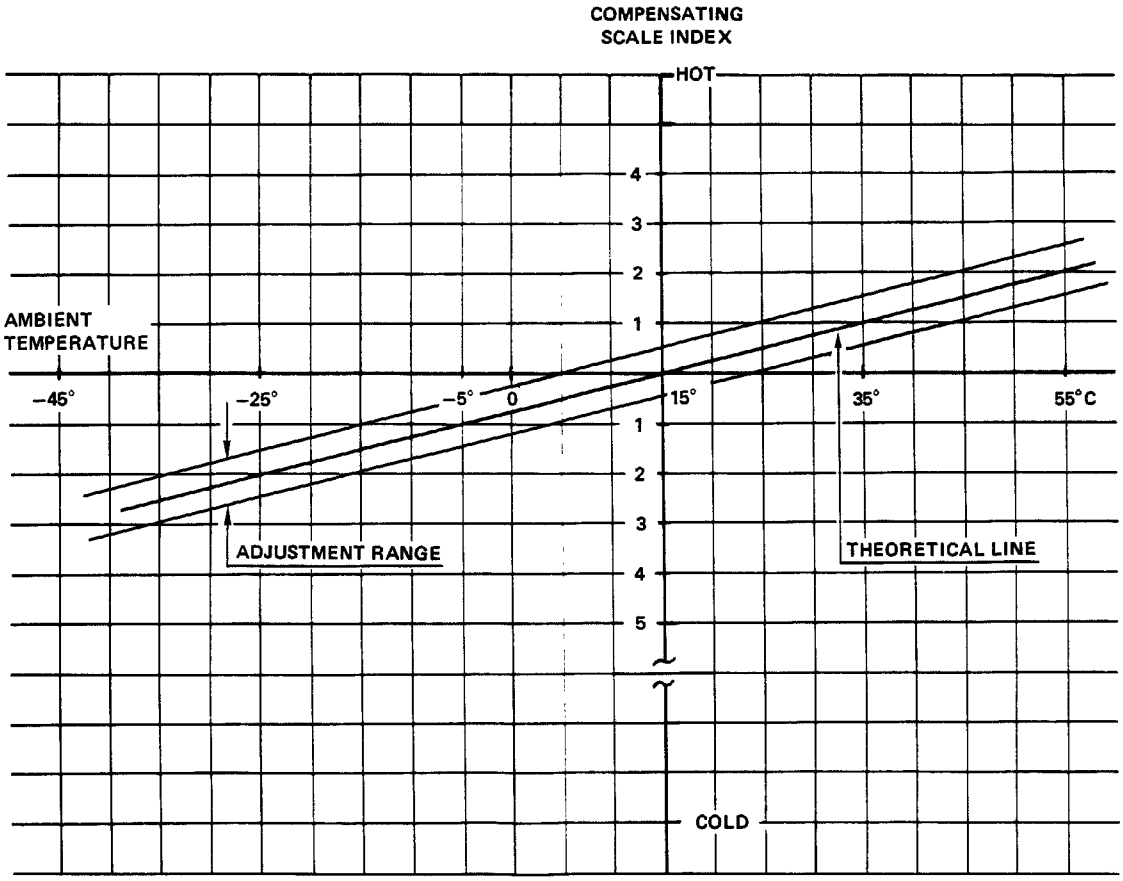
E. Adjustment
(Ref. Fig. 403)
(Ref. Fig. 404)



Cable Tension Regulator
Figure 402



Cable Control Linkage Assembly
Figure 403



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Cable Adjustment Chart
Figure 404

(1)Adjust regulator control linkage.
CAUTION : CHECK THAT CABLES ARE CORRECTLY INSTALLED THROUGHOUT THEIR LENGTH AND THAT INVERSION HAS NOT OCCURRED.
NOTE : Make certain that rigging pin 98A32301016000 is installed in regulator pulley
- Gradually tighten cables with tensioners on cable quadrants until rigging pin 98A27901014000 can readily be installed.
- Install rigging pin.
- Adjust cable tension until locking wedge can be readily removed from regulator. Remove locking wedge.
- Adjust cable tension in accordance with ambient temperature.
- During and after tensioning of cables, flex the two cables equally and release rapidly. During this operation make certain that regulator locking tube slides freely.

(2)Adjust control linkage between regulator and pulley.
- At STA2665(FR49) install rigging pin 98A32301007000 in pulley.
- With turnbuckles, adjust cable tension in accordance with ambient temperature.
- Safety turnbuckles with safety pins.

(3)Remove rigging pins 98A27901014000, 98A32301007000 and 98A32301016000.
(4)Using control handle located in flight compartment turn spindle on Free Fall extension control box ten turns both ways several times to stabilize cable tension.
(5)Turn control handle so that rigging pin 98A27901014000 can be installed in quadrant.
CAUTION : CONTROL HANDLE MUST BE REMOVED AS SOON AS RIGGING PIN IS INSTALLED IN QUADRANT.
(6)Check again that rigging pin 98A32301016000 can be readily installed in regulator pulley.
(7)If necessary carry out further adjustment.
(8)Tighten and safety tensioners on quadrant.
(9)Remove rigging pins 98A27901014000 and 98A32301016000.
(10)Make certain that turnbuckles are tightened and that safety pins are correctly installed.
(11)Install flanged plates (3) and (4) using :
- screws (5) and washers (6).

F. Tests
(1)Carry out landing gear Free Fall control system operational test (Ref. 32-33-00, P. Block 501).

G. Close-Up
(1)Install floor panels.
(2)Remove warning notices.
(3)Remove access platform.

1. Nose Gear Free Fall Extension Control Cables

WARNING : CHECK THAT THE LANDING GEAR GROUND SAFETIES INCLUDING WHEEL CHOCKS ARE IN POSITION.

BEFORE APPLYING OR RELIEVING HYDRAULIC SYSTEM PRESSURE, MAKE CERTAIN THAT THE TRAVEL RANGES OF THE CONTROL SURFACES ARE CLEAR.

BEFORE PRESSURIZING HYDRAULIC SYSTEMS, CHECK THAT ALL CONTROLS ARE SET TO CORRESPOND WITH THE ACTUAL POSITION OF THE SERVICES THEY OPERATE.

BEFORE POWER IS SUPPLIED TO THE AIRCRAFT MAKE CERTAIN THAT ELECTRICAL CIRCUITS UPON WHICH WORK IS IN PROGRESS ARE ISOLATED.

BEFORE PRESSURIZING HYDRAULIC SYSTEMS, MAKE CERTAIN THAT HYDRAULIC SYSTEM UNDER MAINTENANCE HAS BEEN ISOLATED.

A. Equipment and Materials

ITEM	DESIGNATION
(1)98A27901014000	Pin-Rigging, Nose Gear Emergency Lowering Control
(2)98A32301000000	Pin-Rigging, Nose Gear Emergency Lowering Control
(3)	Access Platform 2.60 m - 2 m (8 ft. 7 in., 6 ft. 7 in.)
(4)	Safety Barriers
(5)	Warning Notices
Referenced Procedures	
- 29-10-00, P. Block 301	Main Hydraulic Power - Pressurization/ Depressurization
- 29-14-00, P. Block 301	Hydraulic Reservoir Pressurizing System
- 32-12-11, P. Block 301	Main Gear Main Door - (Ground Door(s) Opening)
- 32-22-11, P. Block 301	Nose Gear Main Door - (Ground Door(s) Opening)
- 32-33-00, P. Block 501	Free Fall Extension

B. Procedure

(1)Job set-up

(a)On panel 4VU

- make certain that landing gear control lever is in DOWN position and prohibit its operation by displaying a warning notice.

(b)Between First Officer's and Third Occupant's seats

- make certain that landing gear Free Fall extension control handle is in Normal position.

(c)Position access platform.

(d)Position safety barriers prohibiting access to gear door travel ranges.

WARNING : MAKE CERTAIN THAT DOOR TRAVEL RANGES ARE CLEAR.

(e)Open main and nose gear doors (Ref. 32-12-11, P. Block 301 and

32-22-11, P. Block 301).
WARNING : WHEN DOORS ARE OPEN, MAKE CERTAIN THAT SAFETY COLLARS ARE POSITIONED ON DOOR ACTUATING CYLINDERS.

(f) Depressurize Green hydraulic reservoir (Ref. 29-14-00, P. Block 301) and prohibit its pressurization by displaying a warning notice
- on panel 429VU to prohibit APU starting
- on reservoir pressurization connectors.

(g) Depressurize Green hydraulic system (Ref. 29-10-00, P. Block 301) and prohibit its pressurization by displaying a warning notice
- on Green hydraulic system ground connectors
- on panel 427VU to prohibit operation of Green electric pumps (ELEC PUMPS pushbutton switch).

(h) In fuselage, open door 811.
Open door 132AZ.

(2) Removal
(Ref. Fig. 401)

(a) In zone 122, at STA972(FR10) install rigging pin 98A27901014000 in quadrant (1).

(b) In zone 124, install rigging pin 98A32301000000 in quadrant (2).

(c) In zone 122, at STA972(FR10) cut and remove lockwire on the two cable quadrant (3) tensioners and release cable tension.

(d) In zone 122, at STA1212(FR15) remove safety pins and slacken turnbuckles

(e) Remove cable guide components from quadrants (2) and (3) and pulleys.

(f) In zone 122 at STA1212(FR15) on pressure seals remove circlips (4). Slide upwards, retaining rings (5) and remove two halves of fairlead (6).
Cut and remove lockwire and slacken flange-to-structure attachment bolts.

(g) In zone 122, remove cable end fittings along with the two cables from quadrant (3).

(h) In zone 124, remove cable end fittings along with cables from quadrant (2). Retain retaining rings (5) for reinstallation.

(3) Installation

(a) Remove rigging pin 98A32301000000 from quadrant (2).
NOTE : All cable control systems are foolproofed.

(b) In zone 122, assemble cable end fittings to quadrant (3) and install cables on pulleys.

(c) In zone 124, assemble cable end fittings to quadrant (2). Install cables on pulleys and in pressure seal fairleads.

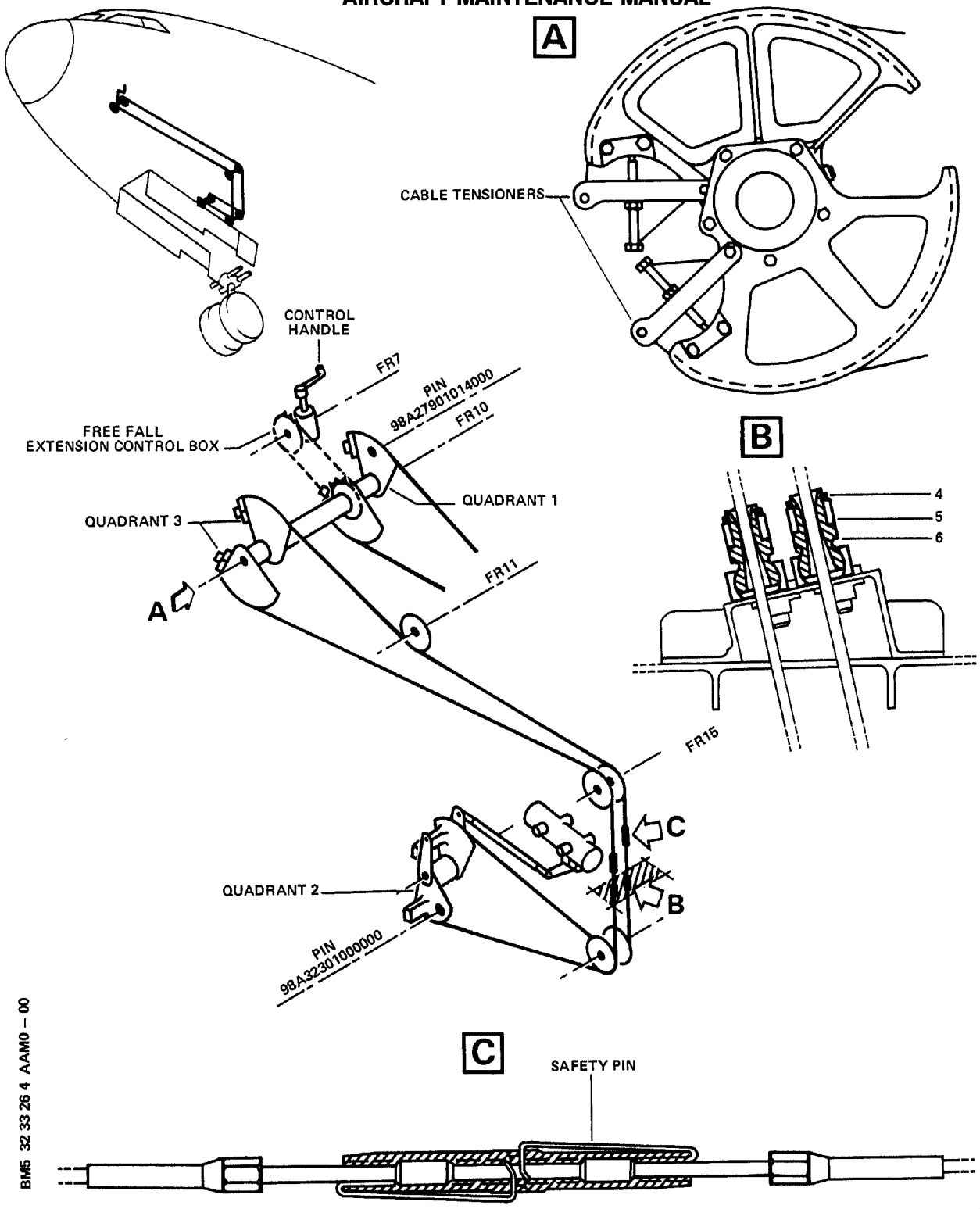
(d) Install retaining rings (5) on cables.

(e) At STA1212 (FR15) assemble cable end fittings to turnbuckles.
Gradually rotate turnbuckle barrels to achieve mid adjustment position.

(f) Safety turnbuckles with safety pins. Check that safety pins engage correctly.

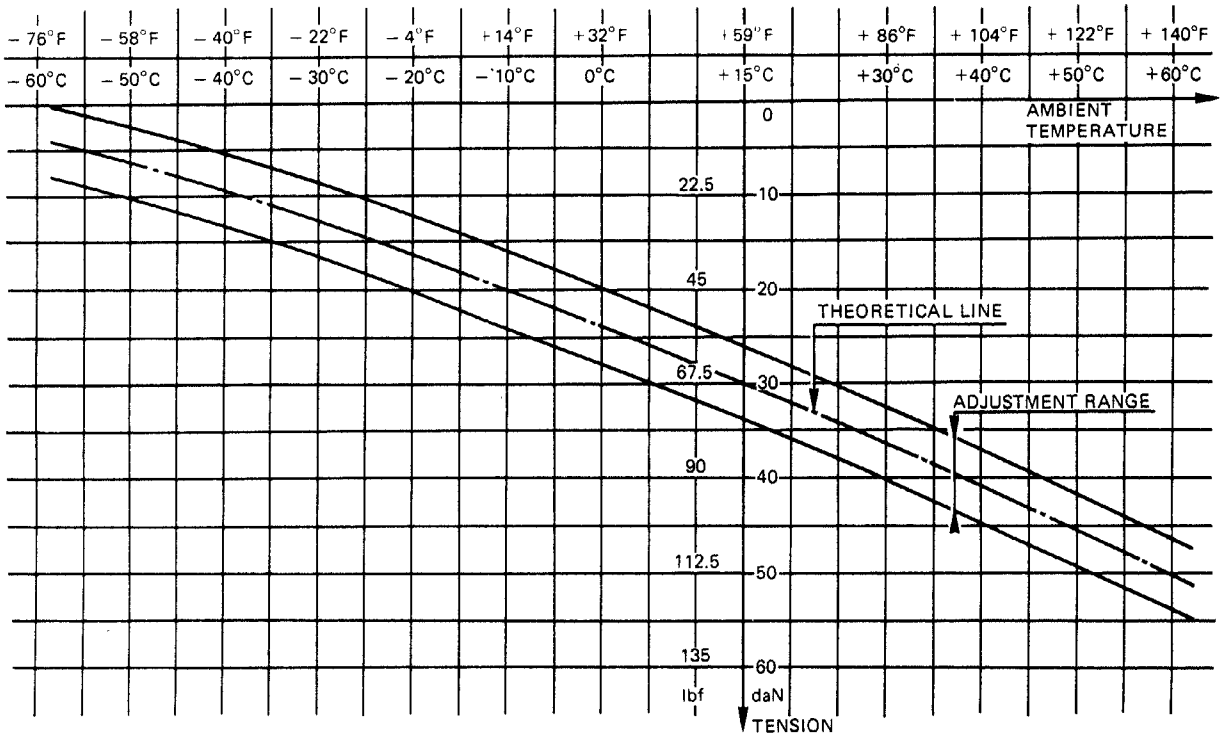
(g) Make certain that cables are correctly installed throughout their length.
NOTE : Pressure seal fairlead Teflon segments are assembled after adjustment of controls.

(h) Install cable guide components on quadrants (2) and (3) and on guide pulleys.



Nose Gear Free Fall Extension Control Cables
Figure 401

(4)Adjustment
  (a)Make certain that rigging pin 98A27901014000 is installed in quadrant (1).
  (b)Adjust cable tensioners on quadrant (3) until rigging pin 98A32301000000 can be installed in quadrant (2).
  (c)Adjust cable tension in accordance with ambient temperature (Ref. Fig. 402).
  (d)Remove two rigging pins 98A27901014000 and 98A32301000000.
  (e)Using control handle located in flight compartment, turn spindle on Free Fall extension control box STA904 (FR7) ten turns both ways several times to stabilize cable tension.
  (f)Position control handle so that rigging pin 98A27901014000 can be readily installed in quadrant (1).
    CAUTION : CONTROL HANDLE MUST BE REMOVED AS SOON AS RIGGING PIN HAS BEEN INSTALLED.
  (g)Check again that rigging pin 98A32301000000 can be readily installed in quadrant (2).
  (h)Tighten and wirelock locknuts on two tensioners on quadrant (3) and remove two rigging pins.
  (j)Assemble pressure seal fairlead segments (6), retaining rings (5) and circlips (4).
(5)Test
  (a)Perform Free Fall extension control system operational test (Ref. 32-33-00, P. Block 501).
(6)Close-up
  (a)Make certain that working area is clean and clear of tools and miscellaneous items of equipment.
  (b)Close door 132AZ.
    In fuselage, close door 811.
  (c)Pressurize hydraulic reservoirs (Ref. 29-14-00, P. Block 301).
    WARNING : MAKE CERTAIN THAT DOOR TRAVEL RANGES ARE CLEAR.
  (d)Close landing gear doors (Ref. 32-12-11, P. Block 301 or 32-22-11, P. Block 301).
  (e)Remove warning notices.
  (f)Close access doors, remove access platforms and safety barriers.
  (g)Remove all ground handling and maintenance equipment, standard and special tools, together with ground power and replenishing equipment, all access equipment and miscellaneous items.



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Free Fall Controls - Cable Tension Adjustment Chart
Figure 402

2. Main Gear Free Fall Extension Control Cables

WARNING : CHECK THAT THE LANDING GEAR GROUND SAFETIES INCLUDING WHEEL CHOCKS ARE IN POSITION.

BEFORE APPLYING OR RELIEVING HYDRAULIC SYSTEM PRESSURE, MAKE CERTAIN THAT THE TRAVEL RANGES OF THE CONTROL SURFACES ARE CLEAR.

BEFORE PRESSURIZING HYDRAULIC SYSTEMS, CHECK THAT ALL CONTROLS ARE SET TO CORRESPOND WITH THE ACTUAL POSITION OF THE SERVICES THEY OPERATE.

BEFORE POWER IS SUPPLIED TO THE AIRCRAFT MAKE CERTAIN THAT ELECTRICAL CIRCUITS UPON WHICH WORK IS IN PROGRESS ARE ISOLATED.

BEFORE PRESSURIZING HYDRAULIC SYSTEMS, MAKE CERTAIN THAT HYDRAULIC SYSTEM UNDER MAINTENANCE HAS BEEN ISOLATED.

A. Equipment and Materials

ITEM	DESIGNATION
(1)98A27901014000	Pin-Rigging, Nose Gear Emergency Lowering Control
(2)98A32301006000	Pin-Rigging, Landing Gear Emergency Lowering Control
(3)98A32301007000	Pin-Rigging, Landing Gear Emergency Lowering Control
(4)98A32303000000	Wedge-Locking, Main Landing Gear Emergency Control Cable Tension regulator
(5)98A27901011000	Pin-Rigging, Landing Gear Emergency Lowering Control
(6)98A32301016000	Pin-Rigging, Landing Gear Emergency Lowering Control
(7)	Access Platforms 2.60 m - 2 m (8 ft. 7 in. - 6 ft. 7 in.)
(8)	Safety Barriers
(9)	Warning Notices
Referenced Procedures	
- 29-10-00, P. Block 301	Main Hydraulic Power - Pressurization/ Depressurization
- 29-14-00, P. Block 301	Hydraulic Resevoir Pressurizing System
- 32-12-11, P. Block 301	Main Gear Main Door - (Ground Door(s) Opening)
- 32-33-00, P. Block 501	Free Fall Extension

B. Procedure

(1)Job set-up

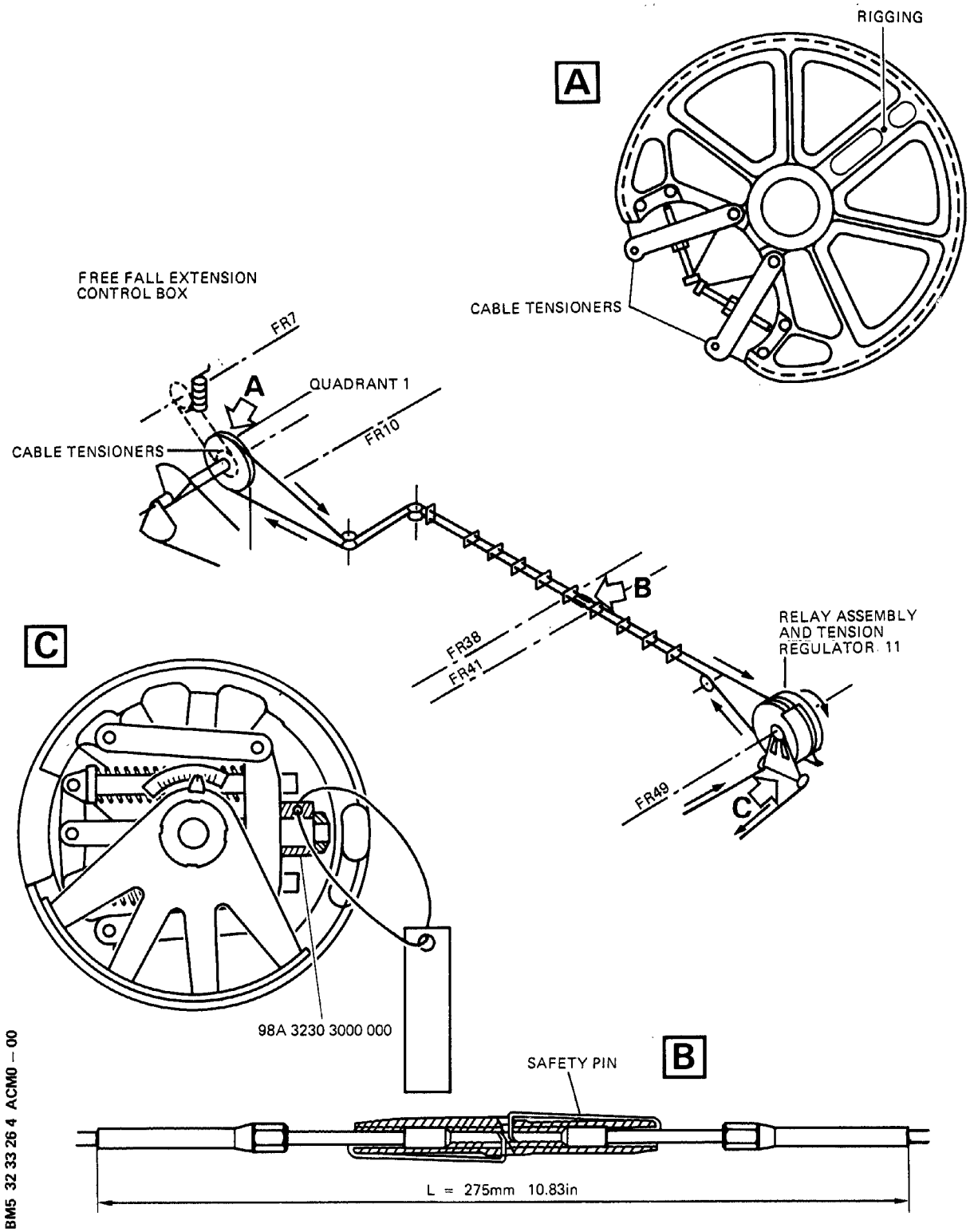
(a)On panel 4VU

- Make certain that landing gear control lever is in Down position and prohibit its operation by displaying a warning notice.

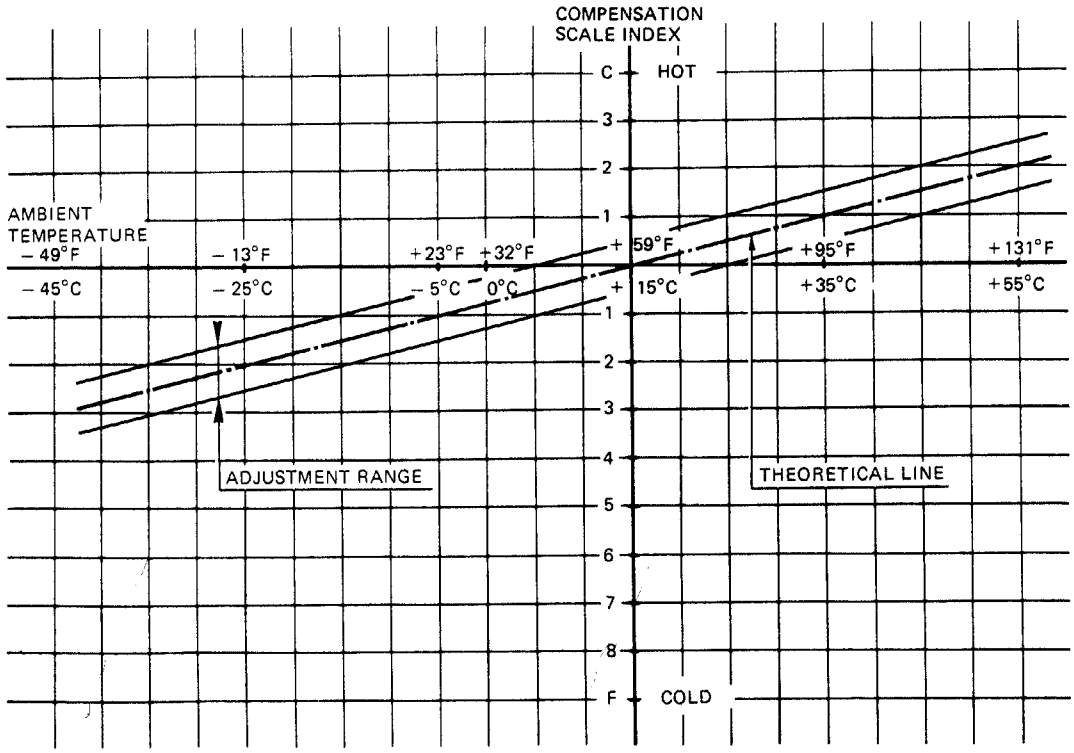
(b)Between First Officer's and Third Occupant's seats

- make certain that landing gear Free Fall extension control handle

is in Normal position.
(c)Position access platform.
(d)Position safety barriers prohibiting access to gear door travel ranges.
WARNING : MAKE CERTAIN THAT DOOR TRAVEL RANGES ARE CLEAR.
(e)Open main gear doors (Ref. 32-12-11, P. Block 301).
WARNING : WHEN DOORS ARE OPEN, MAKE CERTAIN THAT SAFETY COLLARS ARE POSITIONED ON DOOR ACTUATING CYLINDERS.
(f)Depressurize Green hydraulic reservoir (Ref. 29-14-00, P. Block 301) and prohibit its pressurization by displaying a warning notice.
- on panel 429VU, to prohibit APU starting
- on reservoir pressurization connectors.
(g)Depressurize Green hydraulic system (Ref. 29-10-00, P. Block 301) and prohibit its pressurization by displaying a warning notice
- on Green hydraulic system ground connectors
- on panel 427VU to prohibit operation of Green electric pumps (ELEC PUMPS pushbutton switch).
(h)In fuselage, open door 811.
Open door 132AZ.
(2)Removal of cables between quadrant (1) and relay assembly (11) (Ref. Fig. 403).
R (a)In zone 132, remove panels CF, MF,FG, HG, KG, MG, RF and ZF.
(b)In zone 242, remove floor panels AG, BG and CG.
(c)In zone 242, install rigging pin 98A32301016000 in relay assembly (11).
(d)In zone 121 at STA972(FR10) :
- Install rigging pin 98A27901014000 in quadrant (1)
- Release cable tension, using tensioners on relay assembly and tension regulator, until cable tension regulator control locking wedge 98A32303000000 can be installed
- Install wedge.
(e)Remove cable guide components from quadrant (1), (FR10), guide pulleys and relay assembly (11).
(f)Remove safety pins from turnbuckles between STA2131(FR38) and STA2294(FR40)
(g)Remove cable ends from quadrant (1) and tension regulator.
Remove cables.
(3)Installation of cables between quadrant (1) and relay assembly (11).
(a)Install cables on guide pulleys.
NOTE : All cable control systems are foolproofed.
(b)Assemble cable end fittings to quadrant (1) and to tension regulator.
(c)Assemble cable end fittings to turnbuckles.
Tighten turnbuckles progressively until L = 275 mm (10.83 in.). Safety turnbuckles with safety pins.
(d)Make certain that cables are correctly installed throughout their length.
(e)Install cable guide components on quadrant (1) (FR10), on guide pulleys and on tension regulator.
(f)Remove rigging pins 98A27901014000 and 98A32301016000.
(4)Adjust linkage between quadrant (1) and relay assembly (11).
(Ref. Fig. 404)
(a)Install rigging pin 98A32301016000 in relay assembly (11), in zone 242.
(b)Adjust progressively cable tensioners on quadrant (1) until rigging pin



Main Gear Free Fall Extension Control Cables
Figure 403



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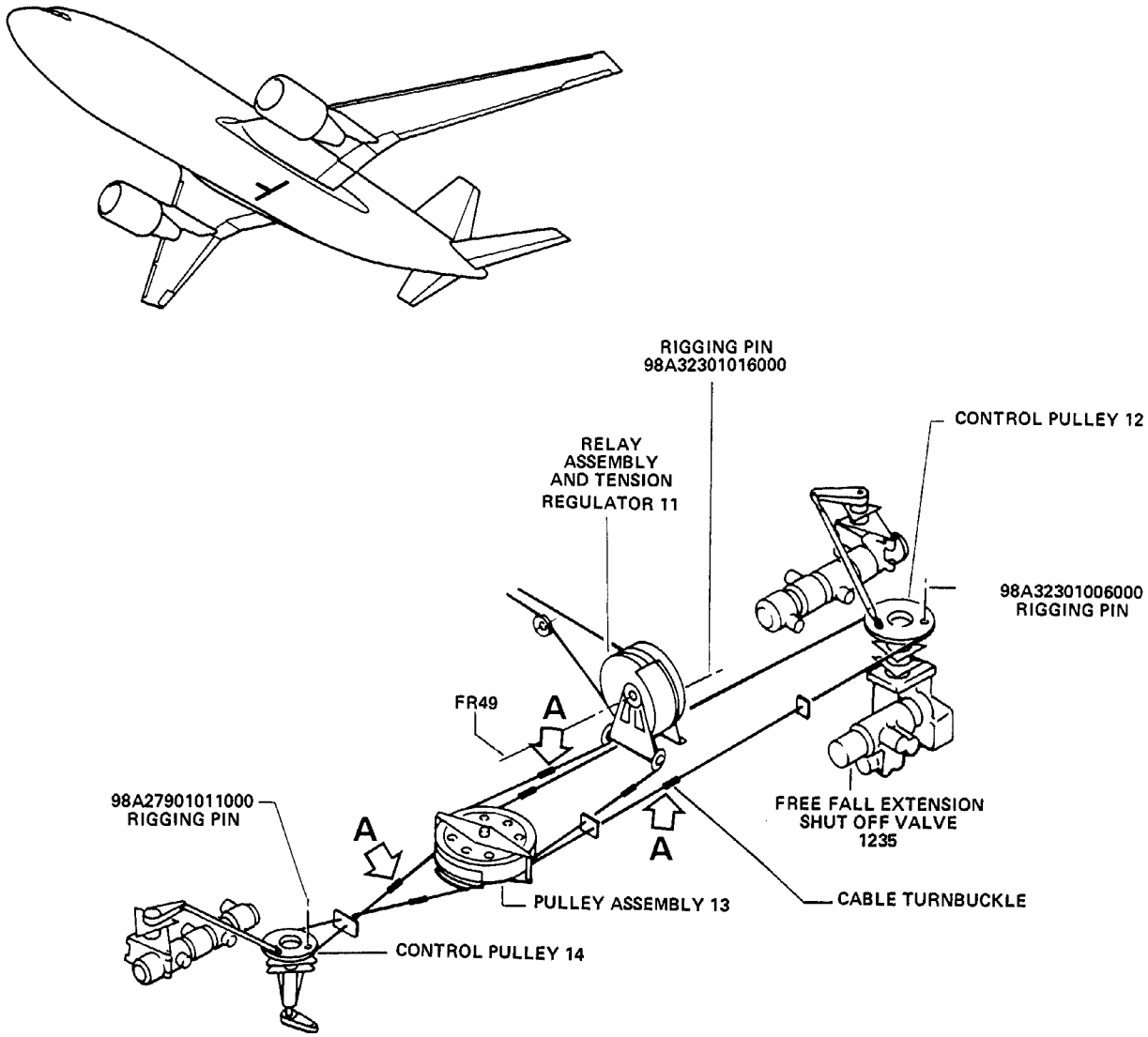
Free Fall Controls - Cable Tension Adjustment Chart
(With Tension Regulator)
Figure 404

98A27901014000 can be installed.
(c)Install rigging pin.
(d)Adjust cable tension until cable tension regulator wedge can be readily removed.
Remove wedge.
(e)Adjust cable tension using tensioners on quadrant (1) in accordance with ambient temperature until tension regulator index faces graduation mark (Ref. Fig. 404)
(f)During and after tensioning cables flex the two cables equally and release rapidly. During this operation make certain that regulator locking tube slides freely.
(g)Remove rigging pins 98A27901014000 and 98A32301016000.
(h)Using control handle located in flight compartment turn spindle on Free Fall extension control box ten turns both ways several times to stabilize cable tension.
(j)Position control handle so that rigging pin 98A27901014000 can be readily installed in quadrant (1).
CAUTION : CONTROL HANDLE MUST BE REMOVED AS SOON AS RIGGING PIN HAS BEEN INSTALLED.
(k)Check again that rigging pin 98A32301016000 can be readily installed in relay assembly (11).
(l)Perform further adjustments if necessary.
(m)Tighten and wirelock locknuts on tensioners on quadrant.
(n)Remove rigging pins 98A27901014000 and 98A32301016000.
(p)Make certain that turnbuckles are tightened and that safety pins are correctly installed.
(q)In zones 132 and 242, install floor panels.
(5)Removal of cables between relay assembly (11) and pulley assembly (13) (Ref. Fig. 405).
(a)In zone 242, remove floor panels QF, CG and NF.
In zone 241, remove floor panel LF.
(b)Install rigging pin 98A32301016000 in relay assembly (11).
(c)Install rigging pin 98A32301007000 in pulley assembly (13).
(d)Remove cable guide components from relay assembly (11) and pulley assembly (13).
(e)Remove safety pins from turnbuckles and slacken.
(f)Remove cable end fittings from relay assembly (11) and pulley assembly (13) and remove cables.
(6)Installation of cables between relay assembly (11) and pulley assembly (13).
(a)Install cables and engage end fittings of each cable in their respective housings.
(b)Make certain that rigging pins 98A32301016000 and 98A32301007000 are installed in relay assembly (11) and pulley assembly (13).
(c)Engage cable end fittings in turnbuckles and tighten progressively.
(d)Make certain that cables are correctly installed throughout their length.
(e)Adjust cable tension in accordance with ambient temperature (Ref. Fig. 402).
(f)Install cable guide components.
(7)Adjust linkage between relay assembly (11) and pulley assembly (13).



Main Gear Free Fall Extension control Cables
Figure 405

(a)Remove rigging pins 98A32301016000 and 98A32301007000.
(b)Using control handle located in flight compartment, turn spindle on Free Fall extension control box STA904(FR7) ten turns both ways several times to stabilize cable tension.
(c)Turn control handle so that rigging pin 98A27901014000 can be installed in quadrant (1)
CAUTION : CONTROL HANDLE MUST BE REMOVED AS SOON AS RIGGING PIN HAS BEEN INSTALLED IN QUADRANT (1).
(d)Check again that rigging pin 98A32301007000 can be readily installed in pulley assembly (13).
(e)Safety turnbuckles with safety pins.
(f)Remove rigging pins 98A32301007000 and 98A27901014000.
(g)In zones 242 and 241, install floor panels.

(8)Removal of cables between pulley assembly (13) and Free Fall extension shut off valve 1235 control pulley (12).
(Ref. Fig. 405)
(a)In zone 242, remove floor panels NF, CG, QF and RF.
(b)Install rigging pin 98A32301007000 in pulley assembly (13).
(c)Install rigging pin 98A32301006000 in control pulley (12).
(d)Remove cable guide components from pulley assembly (13) and control pulley (12).
(e)Remove safety pins from turnbuckles and slacken.
(f)Remove cable end fittings from pulley assembly (13) and control pulley (12) and remove cables.

(9)Installation of cables between pulley assembly (13) and control pulley (12).
(a)Install cables and engage end fittings of each cable in their respective housings.
(b)Make certain that rigging pins 98A32301007000 and 98A32301006000 are installed in pulley assembly (13) and control pulley (12).
(c)Assemble cable end fittings to turnbuckles and tighten progressively.
(d)Make certain that cables are correctly installed throughout their length.
(e)Adjust cable tension in accordance with ambient temperature (Ref. Fig. 402).
(f)Install cable guide components.

(10)Adjust linkage between pulley assembly (13) and Free Fall extension shut off valve 1235 control pulley (12).
(a)Remove rigging pins 98A32301007000 and 98A32301006000.
(b)Using control handle located in flight compartment, turn spindle on Free Fall extension control box STA904(FR7) ten turns both ways several times to stabilize cable tension.
(c)Position control handle so that rigging pin 98A27901014000 can readily be installed in quadrant (1).
CAUTION : CONTROL HANDLE MUST BE REMOVED AS SOON AS RIGGING PIN HAS BEEN INSTALLED IN QUADRANT (1).
(d)Check again that rigging pin 98A32301006000 can readily be installed in control pulley (12).
(e)Safety turnbuckles with safety pins.
(f)Remove rigging pins 98A32301006000 and 98A27901014000.
(g)In zones 242 and 241, install floor panels.

(11)Removal of cables between pulley assembly (13) and Air Vent Valve Control Pulley (14).
(Ref. Fig. 405)
(a)In zone 242, remove floor panels NF, CG and QF.
In zone 241, remove floor panel LF.
(b)Install rigging pin 98A32301007000 in pulley assembly (13).
(c)Install rigging pin 98A27901011000 in control pulley (14).
(d)Remove cable guide components from pulley assembly (13) and control pulley (14).
(e)Remove cable end fittings from pulley assembly (13) and control pulley (14) and remove cables.
(12)Installation of cables between pulley assembly (13) and air vent valve control pulley (14).
(a)Install cables and engage end fittings of each cable in their respective housings.
(b)Make certain that rigging pins 98A32301007000 and 98A27901011000 are installed in pulley assembly (13) and control pulley (14).
(c)Assemble cable end fittings to turnbuckles and tighten progressively.
(d)Make certain that cables are correctly installed throughout their length.
(e)Adjust cable tension in accordance with ambient temperature (Ref. Fig. 402).
(f)Install cable guide components.
(13)Adjust linkage between pulley assembly (13) and air vent valve control pulley (14).
(a)Remove rigging pins 98A32301007000 and 98A27901011000.
(b)Using control handle located in flight compartment, turn spindle on Free Fall extension control box STA904(FR7) ten turns both ways to stabilize cable tension.
(c)Position control handle so that rigging pin 98A27901014000 can be readily installed in quadrant (1).
CAUTION : CONTROL HANDLE MUST BE REMOVED AS SOON AS RIGGING PIN HAS BEEN INSTALLED IN QUADRANT (1).
(d)Check again that rigging pin 98A27901011000 can be readily installed in control pulley (14).
(e)Safety turnbuckles with safety pins.
(f)Remove rigging pins 98A27901011000 and 98A27901014000.
(g)In zones 242 install floor panels.
(14)Tests
(a)Perform landing gear Free Fall extension control system operational test (Ref. 32-33-00, P. Block 501).
(15)Close-up
(a)Make certain that working area is clean and clear of tools and miscellaneous items of equipment.
(b)Close access door 132AZ and 811.
In fuselage, close access door 811.
(c)Pressurize hydraulic reservoirs (Ref. 29-14-00, P. Block 301).
WARNING : MAKE CERTAIN THAT DOOR TRAVEL RANGES ARE CLEAR.
(d)Close landing gear doors (Ref. 32-12-11, P. Block 301).
(e)Remove warning notices.
(f)Close access doors, remove access platforms and safety barriers.

(g)Remove all ground handling and maintenance equipment, standard and special tools, together with ground power and replenishing equipment, all access equipment and miscellaneous items.

WHEELS AND BRAKES - DESCRIPTION AND OPERATION

1. Tires, Wheels, Brakes :

The eight main gear wheels are equipped with multidisc carbon brakes each operated by two independently supplied sets of pistons ; one set supplied by the Green hydraulic system, the other by the Yellow hydraulic system assisted by two brake power accumulators.
Each brake is equipped with an automatic adjuster, wear indicator and temperature sensor.
The wheels are fitted with tubeless tires. The pressure is monitored by a tire pressure indicating system (TPIS) (optional).
The nose gear wheels are braked by brake bands at the end of the gear retraction cycle.
(Ref. Fig. 001)
The main gear wheels include fusible plugs which protect the wheel and tire against burst in the event of overheat.
Fans to speed up brake cooling are available as an option.

2. Anti Skid Sytem

An anti skid system, based on the comparison of the rotational speed of the nose and main gear wheels, provides for maximum braking efficiency by maintaining the wheels at the limit of an impending skid, and protects the tires (locked wheel protection).
The brake release orders generated are sent to the eight Normal or four Alternate servovalves as well as to the ECAM system which provides CRT display of the released brakes and of the actions and limitations associated with the various possible failures.
The three-position (NORM/ON, ALTN/ON, ALTN/OFF) BRK/A/SKD switch on the center instrument panel serves to switch from the Green system to the Yellow system in the event of partial failure of the antiskid system or to test the Yellow system (ALTN/ON) and if necessary to deactivate the anti skid system (ALTN/OFF).

3. Braking Modes

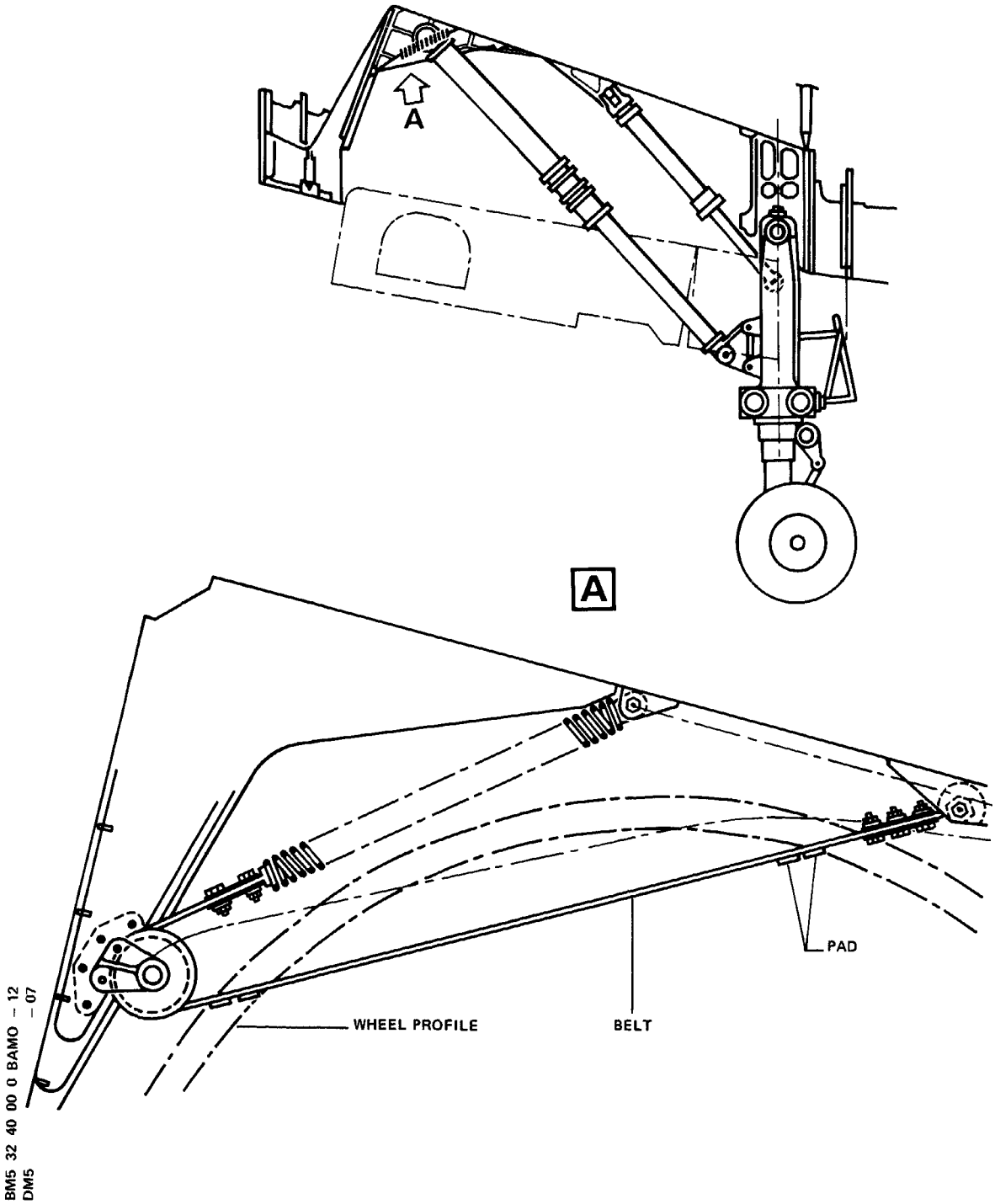
(Ref. Fig. 002)

Four braking modes are available depending on the hydraulic system used and the position of the BRK/A/SKID switch and PARKING BRAKE control handle.

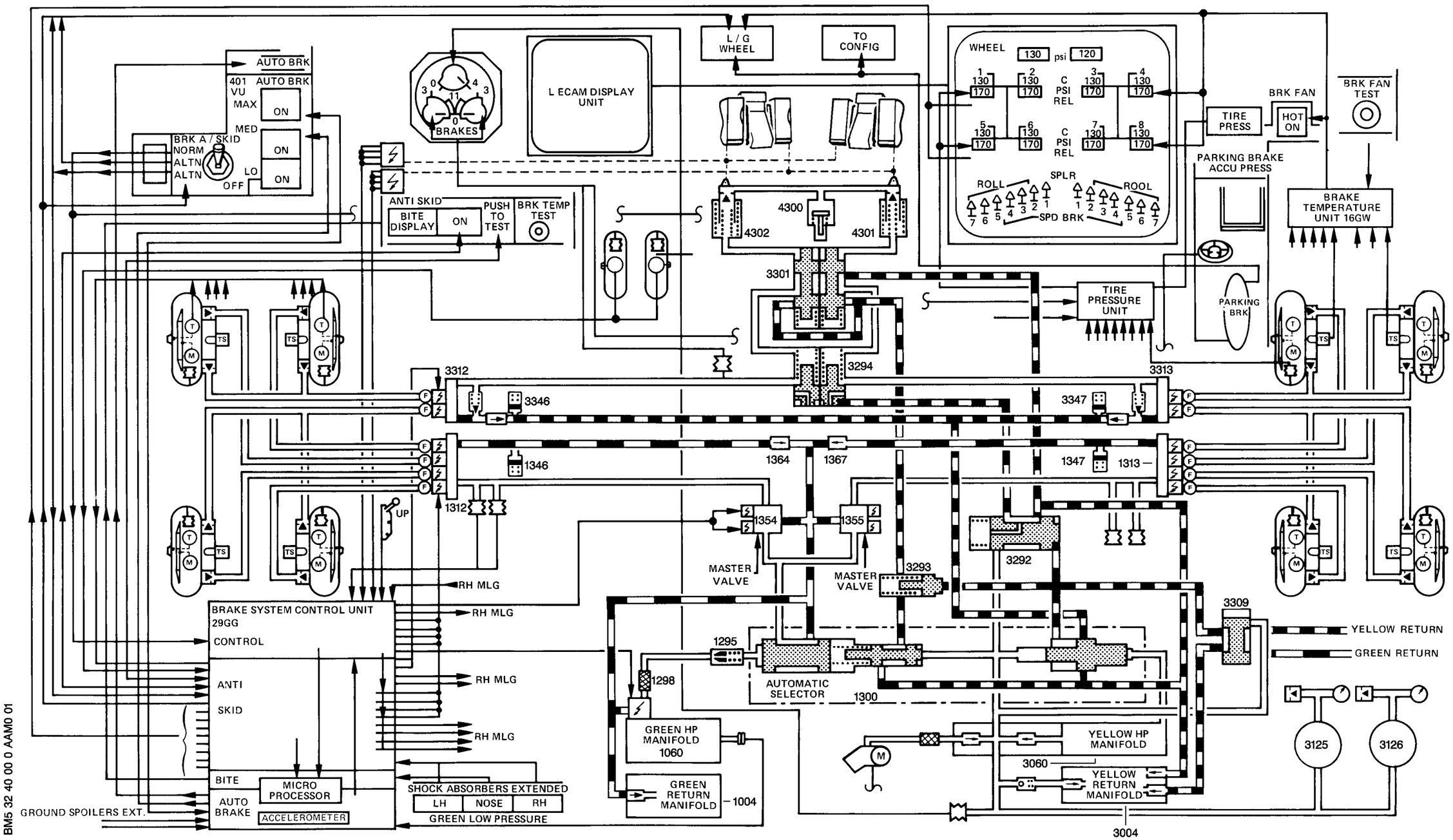
A. Normal Braking (NORM/ON)

Normal braking is obtained when Green high pressure is available, the BRK/A/SKID switch is in the NORM/ON position and the PARKING BRAKE control handle is in the normal (released) position.
Control is electrical and achieved either :
- via the pedals
- or automatically :
  - . on the ground by the auto brake system
  - . in flight when the landing gear control lever is placed in UP position.

No normal brake pressure indicator is provided.
A BRK FAIL light alerts the flight crew in the event of certain failures :
- insufficient brake pressure during gear retraction



Nose Wheel In-Flight Braking
Figure 001



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Brake System - Schematic
Figure 002

- anti skid system failure in flight prior to landing with gear downlocked.

B. Alternate Braking with Anti Skid (ALTN/ON)
Alternate braking with anti skid associates Yellow high pressure with anti skid regulation. This mode is obtained via the **BRK/A/SKID** switch by selecting the **ALTN/ON** position or automatically with the switch in **NORM/ON** position if Green pressure is not available or drops during braking.
Switching between the Green and Yellow systems is achieved automatically by a reversible hydraulic selector.
The orders are entered via the pedals only and transmitted by an auxiliary low pressure hydraulic system. The pressure delivered to the left and right brakes is indicated on a brake Yellow pressure triple indicator located on the center instrument panel.
The anti skid system and associated indicating are operative.

C. Alternate Braking without Anti Skid (ALTN/OFF)
Alternate braking without anti skid (**ALTN/OFF**) differs from the preceding mode in that anti skid regulation is no longer available :
- deactivated electrically (**BRK/A/SKID** switch in **ALTN/OFF** position or power supply failure)
- deactivated hydraulically if the brakes are supplied by the brake power accumulators only (in this case the position of the **BRK/A/SKID** switch is irrelevant).
  Switching between the Yellow high pressure system and the accumulators is automatic and reversible.

The power accumulators, the pressure of which is read on the brake Yellow pressure triple indicator, can be recharged by pressing the **ACCU PRESS** pushbutton switch controlling the Yellow electric pump.
The accumulators are dimensioned to supply at least seven full brake applications.

D. Parking Brake
Placing the **PARKING BRAKE** control handle in on (applied) position deactivates the other braking modes and supplies the brakes with Yellow high pressure or accumulator pressure limited at 145 bars (2103 psi).
The return lines are shut off to ensure an autonomy of at least twelve hours. The **TO CONFIG** warning alerts the flight crew if the **PARKING BRAKE** control handle is in the on (applied) position and one engine at full throttle.

4. Auto Brake
This system serves to reduce the delay in braking in the event of an acceleration - stop (**MAX** mode) or limit the deceleration upon landing to a preselected value.
The flight crew arms the system by pressing the **LO, MED** or **MAX** pushbutton switch, the blue **ON** legend of which comes on provided that Normal braking is operational and the accelerometer test correct. Braking is initiated by the ground spoiler extension command. On the upper part, a green bar comes on when 80% of the corresponding deceleration rate is reached (**LO** and **MED** pushbutton switches) or when full pressure command is applied (**MAX** pushbutton switch). In this case, the blue **ON** legend goes off.

The auto brake system is dearmed :
- by the loss of one or more of the arming conditions or
- by applying sufficient pressure to the pedals with the aircraft on the ground.

The amber **AUTO BRK** legend flashes when the system is dearmed.

5. Brake Temperature System

The brake temperature system serves to measure the temperature at each of the eight brakes, provide temperature readout on the right **ECAM** display unit, generate an overheat warning, and if necessary, warn the flight crew via the left **ECAM** display unit, to delay takeoff or extend the gear.

6. Ground Tests and BITE

On the maintenance panel :
- **ANTI SKID** section, an **OK/PUSH TO TEST** pushbutton switch serves to test the anti skid system for correct operation by initiating a test program.
- **BRK TEMP** section, a **TEST** pushbutton switch serves to test the temperature detection/measurement channels by simulating a given temperature above the warning triggering threshold.

The brake control unit **BITE** function continuously monitors the electrical control and regulation functions via a microprocessor which is also used by the auto brake system. A sequence of maintenance tests is also integrated in the control unit logic. The faults detected are memorized, indicated by a **BITE/DISPLAY** annunciator on the maintenance panel, and can be called up on the face of the control unit, located in the avionics compartment.

7. Not applicable

8. Component Location

Component location is given in the description chapters concerned.

R **WARNING : CHECK THAT THE LANDING GEAR GROUND SAFETIES INCLUDING WHEEL CHOCKS ARE IN POSITION.**

1. Check of Brake System

A. Equipment and Materials

ITEM	DESIGNATION
Referenced Procedures	
- 32-12-11, P. Block 301	Main Gear Main Door - (Ground Door(s) Opening)
- 32-22-11, P. Block 301	Nose Gear Main Door - (Ground Door(s) Opening)

B. Procedure

(1)Job set-up

(a)If necessary, open access doors, panels and gear doors (Ref. 32-12-11, P. Block 301 and/or 32-22-11, P. Block 301).

(b)Where leakage is suspected in a brake system, pressurize system.

(2) Overall Check

(a)Check attach and hinge hardware for

- Security of attachment
- Correct safetying (cotter pins, tabwashers,lockplates, lockwire)
- Oxidation on pins, screws, nuts, washers.

(b)Make certain that identification labels are correctly attached.

(c)Make certain that bonding jumpers are in correct condition.

(3)Check of hydraulic hoses

(a)If date is marked on a collar indicating service life limit month and year, check this date. If this date has been reached, replace hose.

(b)Make certain that attaching clamps are of correct diameter, in correct condition, correctly tightened, bear no evidence of wear due to incorrect attachment, vibration or pressure surging.

(c)Check routing of hoses

- Check for evidence of fretting with other hoses and lines, partitions or units.
- Check for evidence of twisting
- Make certain that there is sufficient freeplay by moving the middle of hose up and then down.

(4)Check of hydraulic lines

(a)Check for distortion, incipient cracks, evidence of shock especially on elbows and bends and at connection points with associated units.

(b)Make certain that no conduit rail or metal part can damage lines in their housings.

(c)Check for leakage of hydraulic fluid at connectors and check for correct safetying.

(d)Make certain that mountings, line clamping blocks and attachment collars are correctly tightened.

(5)Check of hydraulic units

(a)Check for correct attachment (correct safetying) and check for

hydraulic fluid leakage at hydraulic connectors.
(b)On units with electrical connections check for correct condition.
(6)Check of electrical wiring
(a)Check electrical connectors for correct connection and safetying.
(b)Make certain that electrical connectors are not contaminated by any fluids. Clean if necessary.
(c)Make certain that wiring is fully protected and check for correct condition.
(7)Check on nose gear
Check for security of attachment and correct condition
- Electrical harnesses
- Connectors and plugs (tachometers)
- Nose gear wheel in-flight braking straps.
(8)Check on main gear
Check for security of attachment and correct condition
- Hydraulic lines (clamps)
- Electrical harnesses
Check cleanliness, visual aspect (signs of ageing, overheating, flaking, deformation)
- Connectors and plugs (tachometers)
Check for evidence of hydraulic fluid at :
- Unions and points where lines connect with units
- Supply lines
- Connecting blocks
- Brake block assembly
- Servovalve
- On brakes (bleed screws, points where lines connect with units and pistons).
Check connection of temperature sensor wiring on aft face of each brake assembly.
(9)Close-Up
(a)Make certain that working area is clean and clear of tools and miscellaneous items of equipment.
(b)Close opened access doors panels and gear doors (Ref. 32-12-11, P. Block 301 and 32-22-11, P. Block 301).

2. Check Difference of Temperature Between Brakes

A. Equipment and Materials

ITEM	DESIGNATION
(1)Material No. 04-001	Common Grease (Ref. 20-31-00)
Referenced Procedures	
- 05-51-16, P. Block 1	Inspection after Brake Emergency Application or Overheat
- 12-37-32, P. Block 1	Wheel Replacement
- 32-42-00, P. Block 501	Normal Braking
- 32-42-27, P. Block 401	Brake Unit

B. Reason for the Job

Each brake unit is equipped with a temperature sensor which serves to transmit temperature information to the flight compartment. (Ref. 05-51-16, P. Block 1).

NOTE : Temperature differences between the brakes of one aircraft may be noted without, however, any component failure.
In order to avoid unjustified removals due to hot or cold brakes, whereas temperatures are within the conventional range, actions
R will be taken only when the three criteria A + C or B + C or D are reached :

A. Cold Brake
Temperature T $\leq$60°C (140°F)

B. Hot Brake
Temperature T $\geq$600°C (1112°F)

C. Temperature Differences
Temperature difference between both brake of the same axle :
T $\geq$150°C (302°F)

D. Difference between average temperature of LH and RH main landing gear brakes is $\geq$ 200°C (392°F)
(No cross wind, no differential braking action).

NOTE 1 : Cross wind can result in a wide temperature difference between left-hand and right-hand legs.

NOTE 2 : Due to gear and bogie beam geometry, it is quite normal to monitor highest brake temperature on the FWD brakes (wheel 1. 2. 3. 4.) than on the rear ones.

(1)Recommendations following brake overheat (Ref. 05-51-16, P. Block 1) (temp indication equal or above brake overheat threshold or release of wheel fuse plugs).

WARNING : DO NOT USE WATER OR ANY OTHER LIQUID TO COOL THE BRAKES. IT IS ALSO PROHIBITED TO SPRAY ANY EXTINGUISHER, EVEN WATER MIST, DIRECTLY ON THE BRAKE CARBON HEAT PACK TO AVOID THERMAL SHOCK.

C. Procedure

(1)Job set-up
Not applicable

(2)Wheel check
(a)Replacement of wheel/tire assembly (Ref. 12-37-32, P. Block 1).
(b)Removal of adjacent wheel on same axle (Ref.12-37-32, P. Block 1).

(3)Brake unit check (Ref. 05-51-16, P. Block 1)

(4)Close-up
(a)Lubricate axle journals with common grease, Material No. 04-001.
(b)Install thrust washer, the two axle protectors and the retaining rings on each axle, or check that they are correctly installed.
(c)If brakes were removed, lubricate and install brakes (Ref. 32-42-27, P. Block 401).
(d)Install the new main wheels (Ref. 12-37-32, P. Block 1).

3. Inspection of Wheels After Rejected Takeoff (RTO)

R If wheel fusible plugs have melted, replace the wheel and the adjacent wheel (Ref. 12-37-32, P. Block 1).

NOTE : On wheels whose fusible plugs did not melt during the RTO, perform a visual inspection to check condition of wheel (without removing wheel from the aircraft).

1. Elimination of Corrosion

CAUTION : TAKE CARE THAT MATERIALS USED DO NOT COME INTO CONTACT WITH ASSEMBLY AREAS.

A. Reason for the Job

(1)To eliminate any traces of corrosion before touching up paintwork, in order to maintain wheels and brakes as clean as possible.

B. Eliminate Corrosion on Aluminium Alloy (AU2GN) (WHEELS AND BRAKES)

(1)Equipment and Materials

ITEM	DESIGNATION
(a)	Nylon Brush
(b)	Wads of Cotton Wool
(c)	Abrasive Paper (Minnesota 3M, Emery, Polishing
(d)Material No. 11-002	Cleaning Agents (Ref. 20-31-00)
(e)Material No. 11-003	Cleaning Agents (Ref. 20-31-00)
(f)Material No. 12-003	Strippers (Ref. 20-31-00)
(g)Material No. 13-001	Pretreatment for Painting (Ref. 20-31-00)
(h)Material No. 13-002	Pretreatment for Painting (Ref. 20-31-00)

(2)Procedure

(a)Treatment of corroded areas

- Clean corroded area with Material No. 11-002
- Check paintwork for correct condition (flaking) and delineate corroded area.
- Remove flaked paint and smooth off edges of affected area, using wet-and-dry emery paper.
- Remove corrosion from affected areas with an emery stone.

  NOTE : Depth of material removed during rework shall in no circumstances affect mechanical strength of part. In case of doubt, part shall be sent for repair.
- Degrease thoroughly with chlorine-base solvents (Material No. 11-003 etc...)

(b)Corrosion elimination and passivation

- Pickle corroded surface by rubbing lightly with a wad of cotton wool soaked in a solution of 50% Material No. 13-001 and 50% water.
- During deoxidation, do not allow liquid to run. Place protective covers if required.
- Flush with running water and proceed immediately with protective treatment.

(c)Protective treatment

1 On wheel rims, hydraulic crown and brake support

- Prepare a solution of Material No. 13-002 (35 g/liter) (6 oz/US Gal)
- Apply solution to surface under treatment with another wad of cotton wool.
- Leave for approximately 5 minutes, applying more solution at least

twice, but without rubbing.
- Make certain that solution covers surface completely.
- Rinse with running water. Dry with filtered compressed air, and leave for 12 hours at ambient temperature.

2 On torque tube, retaining plates and thrust plate
- DALIC Nickel-plating

2. Touching-Up Skydrol-Resistant Paintwork

A. Reason for the Job
(1)To avoid corrosion of any stripped metal surfaces (aluminum alloy, steel).

B. Equipment and Materials

ITEM	DESIGNATION
(1)	Paintbrush
(2)	Brush
(3)	Paint Spray Gun
(4)Material No. 11-002	Cleaning Agents (Ref. 20-31-00)
(5)Material No. 12-003	Strippers (Ref. 20-31-00)
(6)Material No. 16-005	Structure Paints (Ref. 20-31-00)
(7)Material No. 16-001	Structure Paints (Ref. 20-31-00)
(8)Material No. 16-016	Structure Paints (Ref. 20-31-00)

C. Procedure
(1)Preparation of areas to be painted
(a)Clean surfaces to be painted with Material No. 11-002 and dry with clean, filtered compressed air.
(b)Apply Material No. 12-003 with a paint brush, and if required, brush surface.
(c)If touch-up is performed in doors, make certain that premises are well ventilated.
(d)Never leave material in contact with surfaces for more than 5 hours.
CAUTION : THE MATERIAL MUST NOT, UNDER ANY CIRCUMSTANCES, COME INTO CONTACT WITH RUBBER, PLASTICS OR ASSEMBLY AREAS.
(e)Rinse with water, preferably under pressure, until all paint and cleaning agent has been removed.
(f)Dry, then clean and degrease completely chlorine-base solvent. Make certain that surfaces are completely free of oxidation.
(2)Preparation of paint mixtures (by volume)
(a)Primer-Material No. 16-005
NOTE : Mixture may be kept for up to 8 hours at 20°C (68°F).
1 100 parts of primer
2 100 parts of hardener
3 20 parts of thinner
(b)Undercoat - Material No. 16-001
NOTE : Mixture may be kept for up to 8 hours at 20°C (68°F).
1 100 parts of primer
2 30 parts of hardener
3 50 parts of thinner
(c)Top-coat - Material No. 16-016
NOTE : Mixture may be kept for up to 8 hours at 20°C (68°F) and must be prepared half an hour prior to use.
1 100 parts of primer
2 100 parts of hardener
3 30 parts of thinner

(3)Application of paint

NOTE : Apply paint with a spray gun overlapping onto adjacent surfaces. As far as possible, the paint and the surfaces to be painted must be at the same temperature 15 to 25°C (59 to 77°F). Relative humidity must be 35 to 75%.

(a)Apply a coat of primer. Leave to dry for 2 hours minimum, 3 hours maximum.

(b)Apply a coat of undercoat. Leave to dry for 3 hours minimum, 4 hours maximum.

(c)Apply a coat of top-coat. Leave to dry for 24 hours before touching.

NOTE : Drying time required so that paint is resistant to Skydrol : 7 days.

1. Main Gear Wheels Messier

The main gear wheels are supplied by the manufacturer of the brakes.
The wheels can be fitted with 46x16 and 49x17 tubeless conventional type tires upto 30 PR or 46x17R20 tubeless radial type tires.
The wheels are comprised of two forged light alloy half-wheels bolted together with high-tensile steel bolts and self-locking nuts. Sealing between the two half-wheels is achieved by an o-ring.
The wheels are equipped with :

- taper roller bearings protected by seals
- Nine brake rotor disc drive keys.
- Two sets of three fusible plugs designed to deflate the tire in the event of excessive brake overheat and thus protect against tire burst resulting from excessive pressure :
  . one set is located on the flange
  . one set is located on the rim at the end of rotor drive key.
- Three-layers heat shields, between drive keys protecting wheel and tire against the heat generated by heat pack.
- One standard inflating valve with possibility of replacement by a valve incorporating a pressure indicator (PSI type).

The hubcap is fixed to the wheel with a V - clamp.
Each wheel/brake assembly is installed on the axle with a sleeve provided by the manufacturer.

Characteristics

Approximate weight : 59 kg (130 lbs)
Fusible plug melting point : 183°C (361°F) on the flange - 300°C (572°F) on the rim.
Tire inflating pressure :

A/C	WEIGHT	TIRE DIMENSIONS	PRESSURE UNDER LOAD BARS	(PSI)
A310-200	125 T	46x16	11.7	(170)
		46x17R20	11.7	(170)
A310-200	132 T	46x16	12.3	(178)
		46x17R20	12.3	(178)
		49x17	10.2	(148)
A310-200	135 T	46x16	12.3	(178)
		46x17R20	12.3	(178)
A310-300	135 T	49x17	11.4	(165)
A310-200	138.6 T	46x16	13	(188)
		46x17R20	13	(188)
		49x17	10.8	(157)
A310-300	138.6 T	46x16	13.2	(191)
		46x17R20	13.2	(191)
		49x17	11	(160)

A/C	WEIGHT	TIRE DIMENSIONS	PRESSURE UNDER LOAD BARS (PSI)
A310-200	142 T	46x16	13.3 (193)
		46x17R20	13.3 (193)
		49x17	11 (160)
A310-200	144 T	46x16 (30 PR)	13.3 (193)
A310-300	150 T	46x16	14.3 (207)
		46x17R20	14.3 (207)
		49x17	11.9 (173)
A310-300	153 T	46x16	14.6 (212)
		46x17R20	14.6 (212)
		49x17	12 (174)
A310-300	157 T	46x16	14.8 (215)
		46x17R20	14.8 (215)
		49x17	12.4 (180)
A310-300	160 T	49x17	12.6 (183)
A310-308	164 T	49x17	12.9 (187)

(Ref. Fig. 001)
(Ref. Fig. 002)

2. Nose Gear Wheels
(Ref. Fig. 003)
The nose gear wheels are manufactured by Messier.
The wheels are comprised of two light alloy half-wheels assembled by high-tensile steel bolts and are equipped with :
- 40x14 tubeless tires
- 40x14R16 radial tires.

R **ON A/C 001-003, 101-200,

(Ref. Fig. 004)
- a standard inflating valve
- at 180° to the inflating valve, provision for a TPIS pressure sensor.

**ON A/C 004-100,

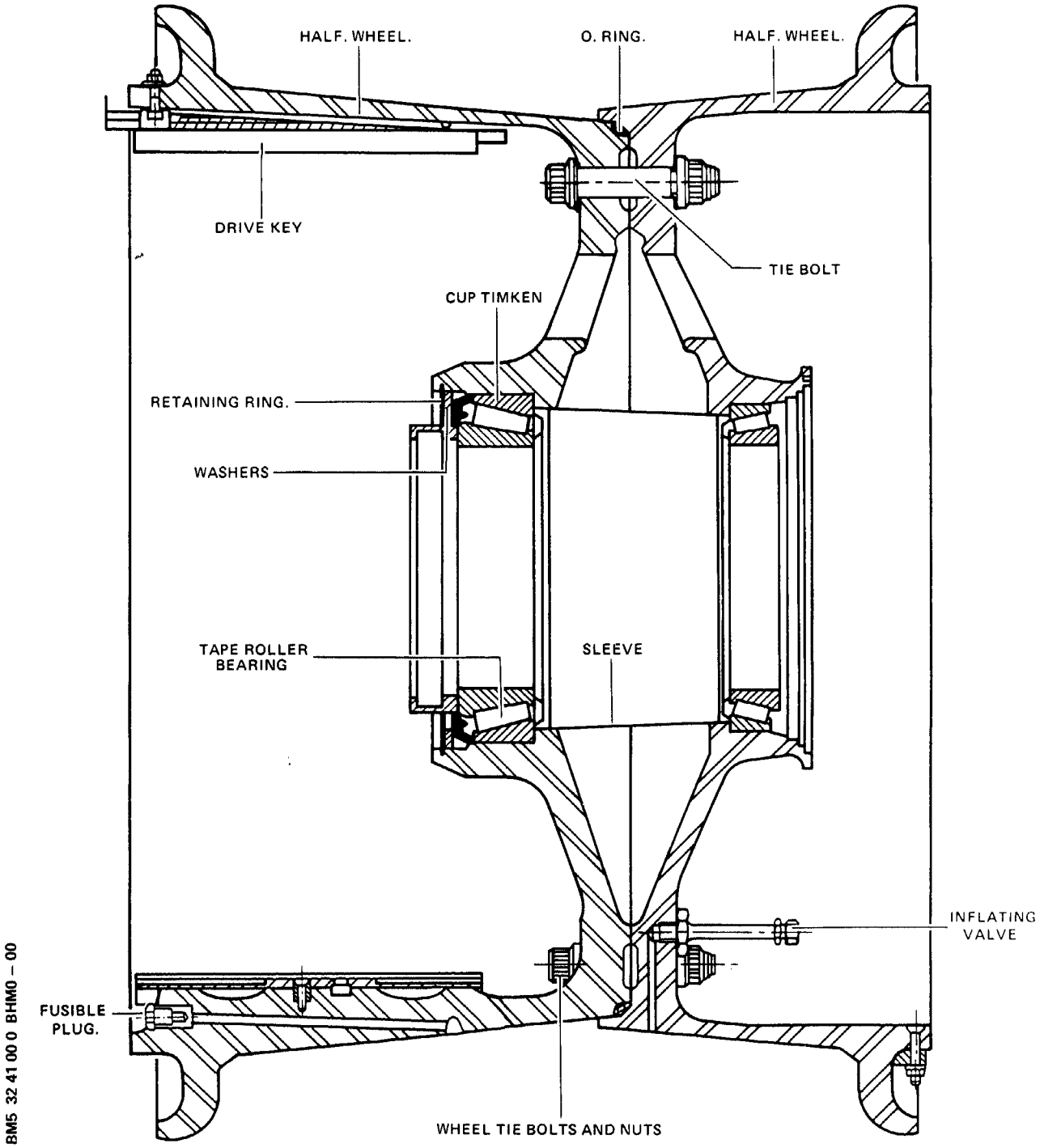
(Ref. Fig. 005)
- a inflating valve incorporating a pressure indicator (PSI type)
- at 180° to the inflating valve, provision for a TPIS pressure sensor.

**ON A/C ALL

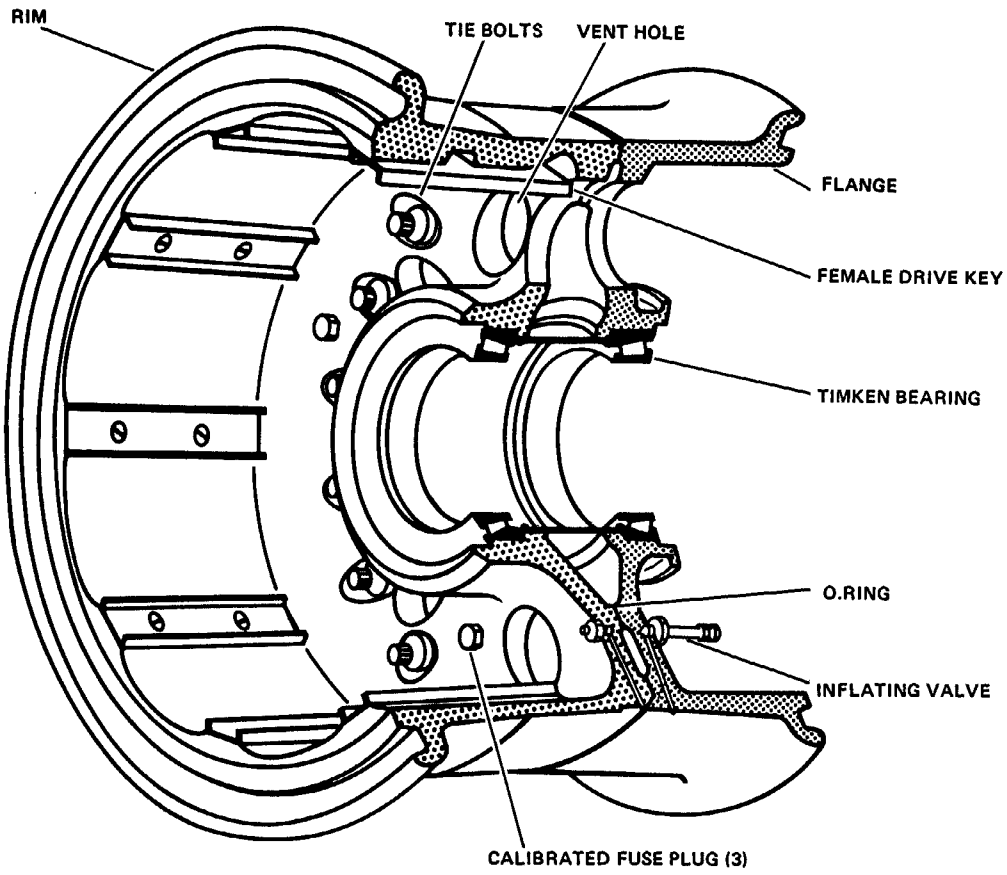
Characteristics
Approximate weight : 30 Kg
Tire inflating pressure :

A/C	WEIGHT	TIRE DIMENSIONS	PRESSURE UNDER LOAD BARS (PSI)
A310-200	125 T	40x14	9.7 (141)
		40x14R16	9.7 (141)
A310-200	132 T	40x14	10 (145)
		40x14R16	10 (145)
A310-200	135 T	40x14	10 (145)
		40x14R16	10 (145)
A310-300	135 T	40x14	11.3 (164)
		40x14R16	11.3 (164)
A310-200	138.6 T	40x14	10.3 (149)
		40x14R16	10.3 (149)
A310-300	138.6 T	40x14	11.3 (164)
		40x14R16	11.3 (164)
A310-200	142 T	40x14	11 (160)
		40x14R16	11 (160)

A/C	WEIGHT	TIRE DIMENSIONS	PRESSURE UNDER LOAD BARS (PSI)
A310-200	144 T	40x14	11 (160)
		40x14R16	11 (160)
A310-300	150 T	40x14	11.3 (164)
		40x14R16	11.3 (164)
A310-300	153 T	40x14	11.3 (164)
		40x14R16	11.3 (164)
A310-300	157 T	40x14 (24 PR)	11.3 (164)
		40x14R16 (P/N M11701)	12.3 (178)
A310-300	160 T	40x14	11.3 (164)
		40x14R16	11.3 (164)
A310-308	164 T	40x14	11.3 (164)
		40x14R16	11.3 (164)



Main Gear Wheel
Figure 001



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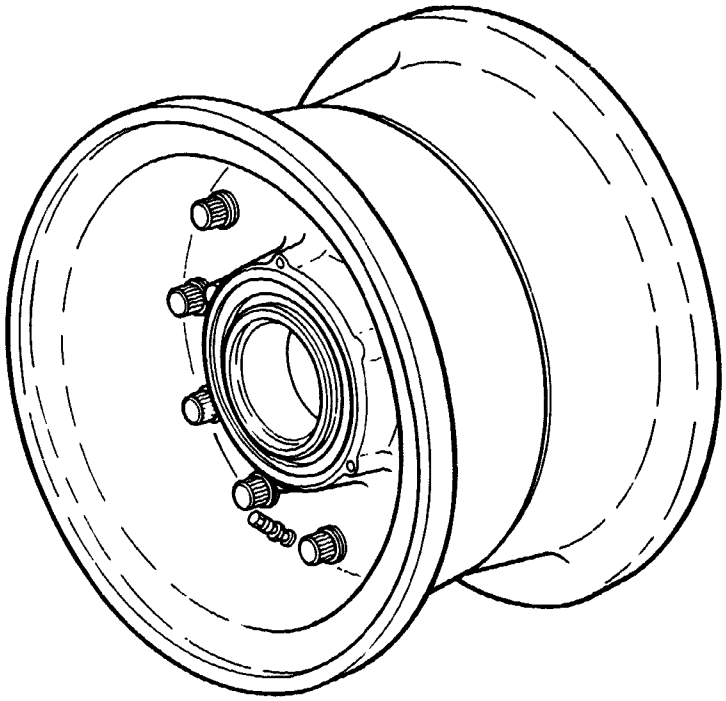
Main Gear Wheel (Messier)
Figure 002



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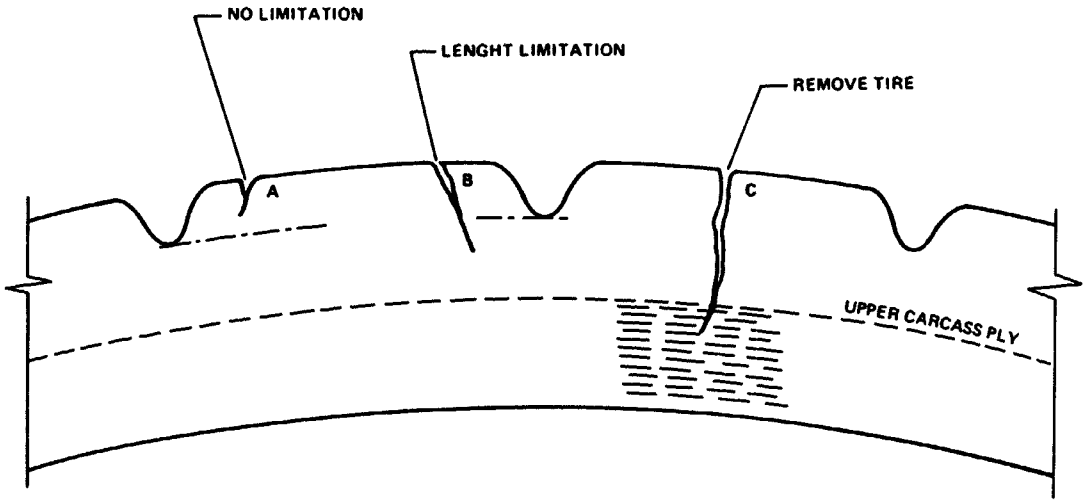
Nose Gear Wheel
Figure 003



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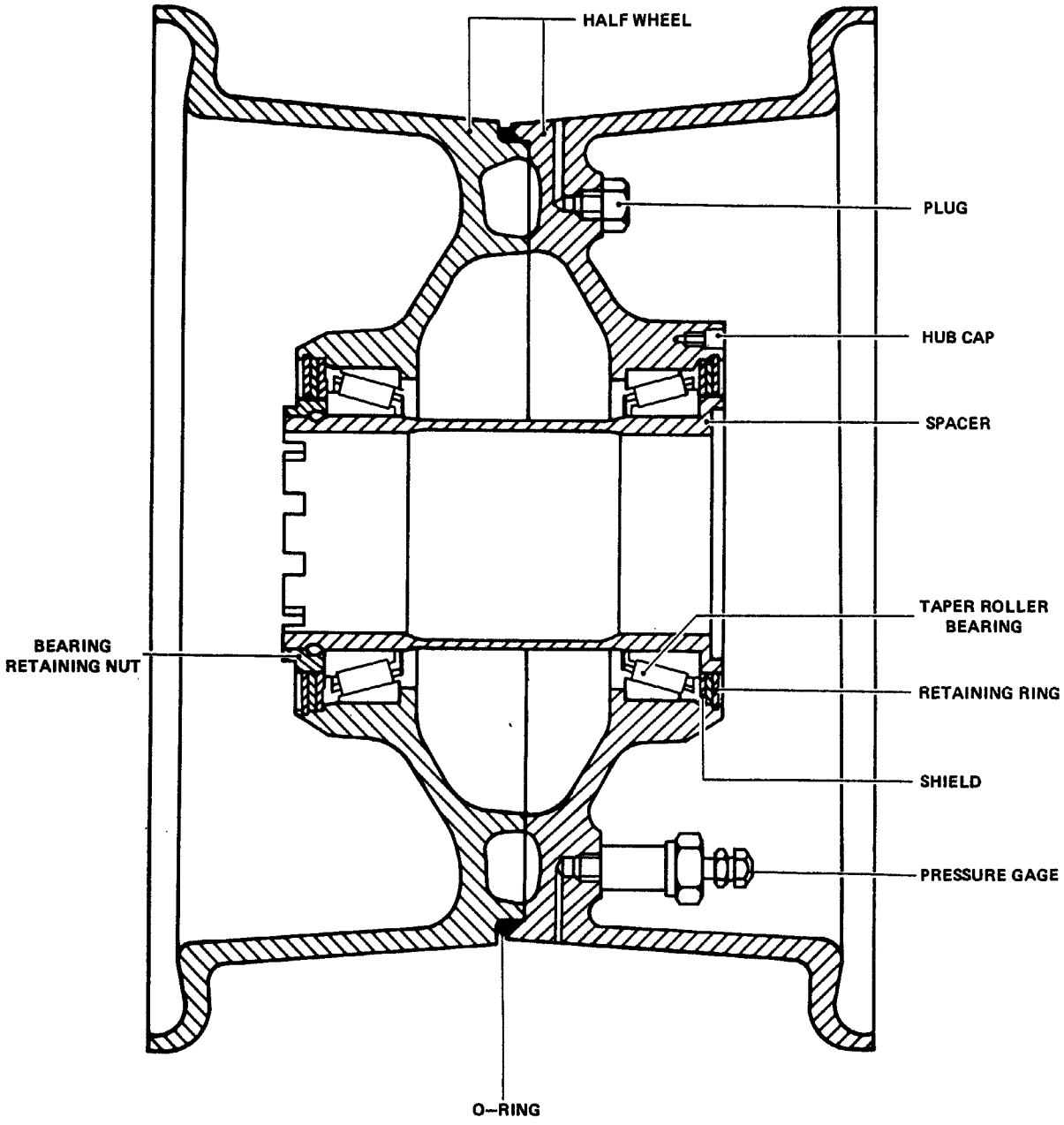
Nose Gear Wheel
Figure 004



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Nose Gear Wheel
Figure 005

1. Checking of Wheels

R WARNING : BE CAREFUL WHEN YOU INFLATE THE TIRES. USE A PRESSURE REGULATOR
R (OR PRESSURE RELIEF VALVE) BETWEEN THE PRESSURE SOURCE AND THE
R TIRE. MAKE SURE THAT THE PRESSURE REGULATOR IS ADJUSTED TO THE
R CORRECT PRESSURE FOR THE TIRE. IF THE PRESSURE SOURCE DOES NOT
R HAVE A PRESSURE REGULATOR, THERE IS A RISK OF INJURY TO PERSONS
R AND/OR DAMAGE TO EQUIPMENT.

A. Reason for the Job
(1)Check of overall condition of wheels and tires.

B. Equipment and Materials

ITEM	DESIGNATION
(1)	Pressure gage
Referenced Procedures	
- 12-37-32, P. Block 1	Wheel Replacement
- 24-41-00, P. Block 301	AC External Power Control

C. Procedure
(1)Job set-up
Not applicable.
(2)Check of overall condition of wheels
(a)On each nose and main gear wheel check tachometer drive shroud.
(b)Check wheel rims for cracks.
(c)If paint marks are provided on the wheel/tire assembly, check that tire has not moved with respect to the wheel.
(d)Check tire pressures
NOTE : The aircraft weights listed in the table below are the maximum ramp weights.
Aircraft resting on its wheels
1 Pressure check of the ten tires using pressure gage.
2 Not applicable
3 Visual inspection
Visually check that forward and aft tires on each bogie exhibit the same deflection (flatness). If one tire or both forward or both aft tires exhibit abnormal deflection, check the pressure of all other tires in the same position on aircraft (forward or aft).
If all pressures are the same, no further action is necessary. If the pressure of suspected tires is low, increase the pressure to correspond to the other tires checked and note this in the appropriate aircraft documents. If the suspected tire has already been noted in the aircraft documents, replace tire (Ref. 12-37-32, P. Block 1).

UNDER NO CIRCUMSTANCES SHOULD A HOT TIRE BE DEFLATED.

POSITION OF PRESSURE P RECORDED ON A/C VERSUS NOMINAL PRESSURE : PN	ACTION TO BE TAKEN	125 T A310-200 NLG 40X14 40X14R16 PN : 9.7 bars (141 PSI)	125 T A310-200 MLG 46X16 46X17R20 PN : 11.7 bars (170 PSI)
P>PN + 0.6 bar	Restore to max of normal operating range if tire is at ambient temperature and recorded pressure confirmed by another pressure gage.	Above 10.3 bars 149 PSI	Above 12.3 bars 178 PSI
PN +0.6bar>P>PN	NORMAL OPERATING RANGE : N.O.R. No action if within N.O.R. During check or initial inflation. Inflate to max of N.O.R.	9.7 to 10.3 bars 141 to 149 PSI	11.7 to 12.3 bars 170 to 178 PSI
PN>P>95% PN	Inflate to max of N.O.R.	9.2 to 9.7 bars 133 to 141 PSI	11.1 to 11.7 bars 161 to 170 PSI
95% PN>P>90% PN	Inflate to max of N.O.R. Check within 24 hours. If pressure down replace wheel and report on record card.	8.7 to 9.2 bars 126 to 133 PSI	10.5 to 11.1 bars 152 to 161 PSI
90% PN>P>80% PN	Replace wheel.	7.7 to 8.7 bars 112 to 126 PSI	9.3 to 10.5 bars 135 to 152 PSI
R 80% PN>P>0	R Replace wheel. Also replace the adjacent wheel unless you can confirm that aircraft has not rolled with the wheel deflated.	0 to 7.7 bars 0 to 112 PSI	0 to 9.3 bars 0 to 135 PSI

POSITION OF PRESSURE P RECORDED ON A/C VERSUS NOMINAL PRESSURE : PN	ACTION TO BE TAKEN	132 T A310-200 NLG 40X14 40X14R16 PN : 10 bars (145 PSI)	132 T A310-200 MLG 46X16 46X17R20 PN : 12.3 bars (178 PSI)	132 T A310-200 MLG 49X17 PN : 10.2 bars (148 PSI)
P>PN +0.6 bar	Restore to max of normal operating range if tire is at ambient temperature and recorded pressure confirmed by another pressure gage.	Above 10.6 bars 154 PSI	Above 12.9 bars 187 PSI	Above 10.8 bars 157 PSI
PN +0.6bar>P>PN	NORMAL OPERATING RANGE : N.O.R. No action if within N.O.R. During check or initial inflation. Inflate to max of N.O.R.	10 to 10.6 bars 145 to 154 PSI	12.3 to 12.9 bars 178 to 187 PSI	10.2 to 10.8 bars 148 to 157 PSI
PN>P>95% PN	Inflate to max of N.O.R.	9.5 to 10 bars 138 to 145 PSI	11.7 to 12.3 bars 170 to 178 PSI	9.7 to 10.2 bars 141 to 148 PSI
95% PN>P>90% PN	Inflate to max of N.O.R. Check within 24 hours. If pressure down replace wheel and report on record card.	9 to 9.5 bars 131 to 138 PSI	11.1 to 11.7 bars 161 to 170 PSI	9.2 to 9.7 bars 133 to 141 PSI
R 90% PN>P>80% PN	Replace wheel.	8 to 9 bars 116 to 131 PSI	9.9 to 11.1 bars 143 to 161 PSI	8.2 to 9.2 bars 119 to 133 PSI
80% PN>P>0 R	Replace wheel. Also replace the adjacent wheel unless you can confirm that aircraft has not rolled with the wheel deflated.	0 to 8 bars 0 to 116 PSI	0 to 9.9 bars 0 to 143 PSI	0 to 8.2 bars 0 to 119 PSI

POSITION OF PRESSURE P RECORDED ON A/C VERSUS NOMINAL PRESSURE : PN	ACTION TO BE TAKEN	135 T A310-200 NLG 40X14 40X14R16 PN : 10 bars (145 PSI)	135 T A310-200 MLG 46X16 46X17R20 PN : 12.3 bars (178 PSI)
P>PN + 0.6bar	Restore to max of normal operating range if tire is at ambient temperature and recorded pressure confirmed by another pressure gage.	Above 10.6 bars 154 PSI	Above 12.9 bars 187 PSI
PN+0.6 bar>P>PN	NORMAL OPERATING RANGE : N.O.R. No action if within N.O.R. During check or initial inflation. Inflate to max of N.O.R.	10 to 10.6 bars 145 to 154 PSI	12.3 to 12.9 bars 178 to 187 PSI
PN>P>95% PN	Inflate to max of N.O.R.	9.5 to 10 bars 138 to 145 PSI	11.7 to 12.3 bars 170 to 178 PSI
95% PN>P>90% PN	Inflate to max of N.O.R. Check within 24 hours. If pressure down replace wheel and report on record card.	9 to 9.5 bars 131 to 138 PSI	11.1 to 11.7 bars 161 to 170 PSI
90% PN>P>80% PN	Replace wheel.	8 to 9 bars 116 to 131 PSI	9.9 to 11.1 bars 143 to 161 PSI
80% PN>P>0	Replace wheel. Also replace the adjacent wheel unless you can confirm that aircraft has not rolled with the wheel deflated.	0 to 8 bars 0 to 116 PSI	0 to 9.9 bars 0 to 143 PSI

POSITION OF PRESSURE P RECORDED ON A/C VERSUS NOMINAL PRESSURE : PN	ACTION TO BE TAKEN	135 T A310-300 NLG 40X14 40X14R16 PN :	135 T A310-300 MLG 49X17 PN :
		11.3 bars (164 PSI)	11.4 bars (165 PSI)
P>PN + 0.6bar	Restore to max of normal operating range if tire is at ambient temperature and recorded pressure confirmed by another pressure gage.	Above 11.9 bars 172 PSI	Above 12 bars 174 PSI
PN+0.6 bar>P>PN	NORMAL OPERATING RANGE : N.O.R. No action if within N.O.R. During check or initial inflation. Inflate to max of N.O.R.	11.3 to 11.9 bars 164 to 172 PSI	11.4 to 12 bars 165 to 174 PSI
PN>P>95% PN	Inflate to max of N.O.R.	10.7 to 11.3 bars 155 to 164 PSI	10.8 to 11.4 bars 157 to 165 PSI
95% PN>P>90% PN	Inflate to max of N.O.R. Check within 24 hours. If pressure down replace wheel and report on record card.	10.2 to 10.7 bars 148 to 155 PSI	10.3 to 10.8 bars 149 to 157 PSI
90% PN>P>80% PN	Replace wheel.	9 to 10.2 bars 131 to 148 PSI	9 to 10.3 bars 131 to 149 PSI
R 80% PN>P>0	R Replace wheel. Also replace the adjacent wheel unless you can confirm that aircraft has not rolled with the wheel deflated.	0 to 9 bar s 0 to 131 PSI	0 to 9 bars 0 to 131 PSI

	POSITION OF PRESSURE P RECORDED ON A/C VERSUS NOMINAL PRESSURE : PN	ACTION TO BE TAKEN	138.6 T A310-200 NLG 40X14 40X14R16 PN : 10.3 bars (149 PSI)	138.6 T A310-200 MLG 46X16 46X17R20 PN : 13 bars (188 PSI)	138.6 T A310-200 MLG 49X17 PN : 10.8 bars (157 PSI)
	P>PN + 0.6 bar	Restore to max of normal operating range if tire is at ambient temperature and recorded pressure confirmed by another pressure gage.	Above 10.9 bars 158 PSI	Above 13.6 bars 197 PSI	Above 11.4 bars 165 PSI
	PN+0.6 bar>P>PN	NORMAL OPERATING RANGE : N.O.R. No action if within N.O.R. During check or initial inflation. Inflate to max of N.O.R.	10.3 to 10.9 bars 149 to 158 PSI	13 to 13.6 bars 188 to 197 PSI	10.8 to 11.4 bars 157 to 165 PSI
	PN>P>95% PN	Inflate to max of N.O.R.	9.8 to 10.3 bars 142 to 149 PSI	12.3 to 13 bars 178 to 188 PSI	10.2 to 10.8 bars 148 to 157 PSI
	95% PN>P>90% PN	Inflate to max of N.O.R. Check within 24 hours. If pressure down replace wheel and report on record card.	9.3 to 9.8 bars 135 to 142 PSI	11.7 to 12.3 bars 170 to 178 PSI	9.7 to 10.2 bars 141 to 148 PSI
	90% PN>P>80% PN	Replace wheel.	8.2 to 9.3 bars 119 to 135 PSI	10.4 to 11.7 bars 151 to 170 PSI	8.6 to 9.7 bars 125 to 141 PSI
R R R R R	80% PN>P>0	Replace wheel. Also replace the adjacent wheel unless you can confirm that aircraft has not rolled with the wheel deflated.	0 to 8.2 bars 0 to 119 PSI	0 to 10.4 bars 0 to 151 PSI	0 to 8.6 bars 0 to 125 PSI

POSITION OF PRESSURE P RECORDED ON A/C VERSUS NOMINAL PRESSURE : PN	ACTION TO BE TAKEN	138.6 T A310-300 NLG 40X14 40X14R16 PN : 11.3 bars (164 PSI)	138.6 T A310-300 MLG 46X16 46X17R20 PN : 13.2 bars (191 PSI)	138.6 T A310-300 MLG 49X17 PN : 11 bars (160 PSI)
P>PN + 0.6 bar	Restore to max of normal operating range if tire is at ambient temperature and recorded pressure confirmed by another pressure gage.	Above 11.9 bars 172 PSI	Above 13.8 bars 200 PSI	Above 11.6 bars 168 PSI
PN+0.6 bar>P>PN	NORMAL OPERATING RANGE : N.O.R. No action if within N.O.R. During check or initial inflation. Inflate to max of N.O.R.	11.3 to 11.9 bars 164 to 172 PSI	13.2 to 13.8 bars 191 to 200 PSI	11 to 11.6 bars 160 to 168 PSI
PN>P>95% PN	Inflate to max of N.O.R.	10.7 to 11.3 bars 155 to 164 PSI	12.5 to 13.2 bars 181 to 191 PSI	10.4 to 11 bars 151 to 160 PSI
95% PN>P>90% PN	Inflate to max of N.O.R. Check within 24 hours. If pressure down replace wheel and report on record card.	10.2 to 10.7 bars 148 to 155 PSI	11.9 to 12.5 bars 173 to 181 PSI	9.9 to 10.4 bars 143 to 151 PSI
90% PN>P>80% PN	Replace wheel.	9 to 10.2 bars 131 to 148 PSI	10.6 to 11.9 bars 154 to 173 PSI	8.8 to 9.9 bars 128 to 143 PSI
80% PN>P>0	Replace wheel. Also replace the adjacent wheel unless you can confirm that aircraft has not rolled with the wheel deflated.	0 to 9 bars 0 to 131 PSI	0 to 10.6 bars 0 to 154 PSI	0 to 8.8 bars 0 to 128 PSI

POSITION OF PRESSURE P RECORDED ON A/C VERSUS NOMINAL PRESSURE : PN	ACTION TO BE TAKEN	142 T A310-200 NLG 40X14 40X14R16 PN : 11 bars (160 PSI)	142 T A310-200 MLG 46X16 46X17R20 PN : 13.3 bars (193 PSI)	142 T A310-200 MLG 49X17 PN : 11 bars (160 PSI)
P>PN + 0.6 bar	Restore to max of normal operating range if tire is at ambient temperature and recorded pressure confirmed by another pressure gage.	Above 11.6 bars 168 PSI	Above 13.9 bars 202 PSI	Above 11.6 bars 168 PSI
PN+0.6 bar>P>PN	NORMAL OPERATING RANGE : N.O.R. No action if within N.O.R. During check or initial inflation. Inflate to max of N.O.R.	11 to 11.6 bars 160 to 168 PSI	13.3 to 13.9 bars 193 to 202 PSI	11 to 11.6 bars 160 to 168 PSI
PN>P>95% PN	Inflate to max of N.O.R.	10.4 to 11 bars 151 to 160 PSI	12.6 to 13.3 bars 183 to 193 PSI	10.4 to 11 bars 151 to 160 PSI
95% PN>P>90% PN	Inflate to max of N.O.R. Check within 24 hours. If pressure down replace wheel and report on record card.	9.9 to 10.4 bars 143 to 151 PSI	11.9 to 12.6 bars 173 to 183 PSI	9.9 to 10.4 bars 143 to 151 PSI
90% PN>P>80% PN	Replace wheel.	8.8 to 9.9 bars 128 to 143 PSI	10.6 to 11.9 bars 154 to 173 PSI	8.8 to 9.9 bars 128 to 143 PSI
80% PN>P>0	Replace wheel. Also replace the adjacent wheel unless you can confirm that aircraft has not rolled with the wheel deflated.	0 to 8.8 bars 0 to 128 PSI	0 to 10.6 bars 0 to 154 PSI	0 to 8.8 bars 0 to 128 PSI

POSITION OF PRESSURE P RECORDED ON A/C VERSUS NOMINAL PRESSURE : PN	ACTION TO BE TAKEN	144 T A310-200 NLG 40X14 40X14R16 PN : 11 bars (160 PSI)	144 T A310-200 MLG 46X16 (30PR) PN : 13.3 bars (193 PSI)
P>PN+0.6 bar	Restore to max of normal operating range if tire is at ambient temperature and recorded pressure confirmed by another pressure gage.	Above 11.6 bars 168 PSI	Above 13.9 bars 202 PSI
PN+0.6 bar>P>PN	NORMAL OPERATING RANGE : N.O.R. No action if within N.O.R. During check or initial inflation. Inflate to max of N.O.R.	11 to 11.6 bars 160 to 168 PSI	13.3 to 13.9 bars 193 to 202 PSI
PN>P>95% PN	Inflate to max of N.O.R.	10.4 to 11 bars 151 to 160 PSI	12.6 to 13.3 bars 183 to 193 PSI
95% PN>P>90% PN	Inflate to max of N.O.R. Check within 24 hours. If pressure down replace wheel and report on record card.	9.9 to 10.4 bars 143 to 151 PSI	12 to 12.6 bars 174 to 183 PSI
90% PN>P>80% PN	Replace wheel.	8.8 to 9.9 bars 128 to 143 PSI	10.6 to 12 bars 154 to 174 PSI
80% PN>P>0	Replace wheel. Also replace the adjacent wheel unless you can confirm that aircraft has not rolled with the wheel deflated.	0 to 8.8 bars 0 to 128 PSI	0 to 10.6 bars 0 to 154 PSI

	POSITION OF PRESSURE P RECORDED ON A/C VERSUS NOMINAL PRESSURE : PN	ACTION TO BE TAKEN	150 T A310-300 NLG 40X14 40X14R16 PN : 11.3 bars (164 PSI)	150 T A310-300 MLG 46X17 46X17R20 PN : 14.3 bars (207 PSI)	150 T A310-300 MLG 49X17 PN : 11.9 bars (173 PSI)
	P>PN + 0.6 bar	Restore to max of normal operating range if tire is at ambient temperature and recorded pressure confirmed by another pressure gage.	Above 11.9 bars 172 PSI	Above 14.9 bars 216 PSI	Above 12.5 bars 181 PSI
	PN+0.6 bar>P>PN	NORMAL OPERATING RANGE : N.O.R. No action if within N.O.R. During check or initial inflation. Inflate to max of N.O.R.	11.3 to 11.9 bars 164 to 172 PSI	14.3 to 14.9 ars 207 to 216 PSI	11.9 to 12.5 bars 173 to 181 PSI
	PN>P>95% PN	Inflate to max of N.O.R.	10.7 to 11.3 bars 155 to 164 PSI	13.6 to 14.3 bars 197 to 207 PSI	11.3 to 11.9 bars 164 to 173 PSI
	95% PN>P>90% PN	Inflate to max of N.O.R. Check within 24 hours. If pressure down replace wheel and report on record card.	10.2 to 10.7 bars 148 to 155 PSI	12.8 to 13.6 bars 186 to 197 PSI	10.7 to 11.3 bars 155 to 164 PSI
	90% PN>P>80% PN	Replace wheel.	9 to 10.2 bars 131 to 148 PSI	11.4 to 12.8 bars 165 to 186 PSI	9.5 to 10.7 bars 138 to 155 PSI
R R R R R	80% PN>P>0	Replace wheel. Also replace the adjacent wheel unless you can confirm that aircraft has not rolled with the wheel deflated.	0 to 9 bars 0 to 131 PSI	0 to 11.4 bars 0 to 165 PSI	0 to 9.5 bars 0 to 138 PSI

POSITION OF PRESSURE P RECORDED ON A/C VERSUS NOMINAL PRESSURE : PN	ACTION TO BE TAKEN	153 T A310-300 NLG 40X14 40X14R16 PN : 11.3 bars (164 PSI)	153 T A310-300 MLG 46X16 46X17R20 PN : 14.6 bars (212 PSI)	153 T A310-300 MLG 49X17 PN : 12 bars (174 PSI)
P>PN + 0.6 bar	Restore to max of normal operating range if tire is at ambient temperature and recorded pressure confirmed by another pressure gage.	Above 11.9 bars 172 PSI	Above 15.2 bars 220 PSI	Above 12.6 bars 183 PSI
PN+0.6 bar>P>PN	NORMAL OPERATING RANGE : N.O.R. No action if within N.O.R. During check or initial inflation. Inflate to max of N.O.R.	11.3 to 11.9 bars 164 to 172 PSI	14.6 to 15.2 bars 212 to 220 PSI	12 to 12.6 bars 174 to 183 PSI
PN>P>95% PN	Inflate to max of N.O.R.	10.7 to 11.3 bars 155 to 164 PSI	13.9 to 14.6 bars 202 to 212 PSI	11.4 to 12 bars 165 to 174 PSI
95% PN>P>90% PN	Inflate to max of N.O.R. Check within 24 hours. If pressure down replace wheel and report on record card.	10.2 to 10.7 bars 148 to 155 PSI	13.1 to 13.9 bars 190 to 202 PSI	10.8 to 11.4 bars 157 to 165 PSI
90% PN>P>80% PN	Replace wheel.	9 to 10.2 bars 131 to 148 PSI	11.7 to 13.1 bars 170 to 190 PSI	9.6 to 10.8 bars 139 to 157 PSI
R 80% PN>P>0	Replace wheel. Also replace the adjacent wheel unless you can confirm that aircraft has not rolled with the wheel deflated.	0 to 9 bars 0 to 131 PSI	0 to 11.7 bars 0 to 170 PSI	0 to 9.6 bars 0 to 139 PSI

POSITION OF PRESSURE P RECORDED ON A/C VERSUS NOMINAL PRESSURE : PN (NLG ONLY)	ACTION TO BE TAKEN	157 T A310-300 NLG 40X14 (24PR) 40X14R16 PN : 11.3 bars (164 PSI)	157 T A310-300 NLG 40X14R16 P/N M11701 PN : 12.3 bars (178 PSI)
P>PN + 0.6 bar	Restore to max of normal operating range if tire is at ambient temperature and recorded pressure confirmed by another pressure gage.	Above 11.9 bars 172 PSI	Above 12.9 bars 187 PSI
PN+0.6 bar>P>PN	NORMAL OPERATING RANGE : N.O.R. No action if within N.O.R. During check or initial inflation. Inflate to max of N.O.R.	11.3 to 11.9 bars 164 to 172 PSI	12.3 to 12.9 bars 178 to 187 PSI
PN>P>95% PN	Inflate to max of N.O.R.	10.7 to 11.3 bars 155 to 164 PSI	11.7 to 12.3 bars 170 to 178 PSI
95% PN>P>90% PN	Inflate to max of N.O.R. Check within 24 hours. If pressure down replace wheel and report on record card.	10.2 to 10.7 bars 148 to 155 PSI	11.1 to 11.7 bars 161 to 170 PSI
R 90% PN>P>80% PN	Replace wheel.	9 to 10.2 bars 131 to 148 PSI	9.9 to 11.1 bars 143 to 161 PSI
80% PN>P>0 R	Replace wheel. Also replace the adjacent wheel unless you can confirm that aircraft has not rolled with the wheel deflated.	0 to 9 bars 0 to 131 PSI	0 to 9.9 bars 0 to 143 PSI

POSITION OF PRESSURE P RECORDED ON A/C VERSUS NOMINAL PRESSURE : PN (MLG ONLY)	ACTION TO BE TAKEN	157 T A310-300 MLG 46X16 46X17R20 PN : 14.8 bars (215 PSI)	157 T A310-300 MLG 49X17 PN : 12.4 bars (180 PSI)
P>PN + 0.6 bar	Restore to max of normal operating range if tire is at ambient temperature and recorded pressure confirmed by another pressure gage.	Above 15.4 bars 223 PSI	Above 13 bars 189 PSI
PN+0.6 bar>P>PN	NORMAL OPERATING RANGE : N.O.R. No action if within N.O.R. During check or initial inflation. Inflate to max of N.O.R.	14.8 to 15.4 bars 215 to 223 PSI	12.4 to 13 bars 180 to 189 PSI
PN>P>95% PN	Inflate to max of N.O.R.	14.1 to 14.8 bars 204 to 215 PSI	11.8 to 12.4 bars 171 to 180 PSI
95% PN>P>90% PN	Inflate to max of N.O.R. Check within 24 hours. If pressure down replace wheel and report on record card.	13.3 to 14.1 bars 193 to 204 PSI	11.2 to 11.8 bars 162 to 171 PSI
90% PN>P>80% PN	Replace wheel.	11.8 to 13.3 bars 171 to 193 PSI	9.9 to 11.2 bars 143 to 162 PSI
80% PN>P>0	Replace wheel. Also replace the adjacent wheel unless you can confirm that aircraft has not rolled with the wheel deflated.	0 to 11.8 bars 0 to 171 PSI	0 to 9.9 bars 0 to 143 PSI

POSITION OF PRESSURE P RECORDED ON A/C VERSUS NOMINAL PRESSURE : PN	ACTION TO BE TAKEN	160 T A310-300 NLG 40X14 40X14R16 PN : 11.3 bars (164 PSI)	160 T A310-300 MLG 49X17 PN : 12.6 bars (183 PSI)
P>PN + 0.6 bar	Restore to max of normal operating range if tire is at ambient temperature and recorded pressure confirmed by another pressure gage.	Above 11.9 bars 172 PSI	Above 13.2 bars 191 PSI
PN+0.6 bar>P>PN	NORMAL OPERATING RANGE : N.O.R. No action if within N.O.R. During check or initial inflation. Inflate to max of N.O.R.	11.3 to 11.9 bars 164 to 172 PSI	12.6 to 13.2 bars 183 to 191 PSI
PN>P>95% PN	Inflate to max of N.O.R.	10.7 to 11.3 bars 155 to 164 PSI	12 to 12.6 bars 174 to 183 PSI
95% PN>P>90% PN	Inflate to max of N.O.R. Check within 24 hours. If pressure down replace wheel and report on record card.	10.2 to 10.7 bars 148 to 155 PSI	11.3 to 12 bars 164 to 174 PSI
90% PN>P>80% PN	Replace wheel.	9 to 10.2 bars 131 to 148 PSI	10.1 to 11.3 bars 146 to 164 PSI
R 80% PN>P>0	Replace wheel. Also replace the adjacent wheel unless you can confirm that aircraft has not rolled with the wheel deflated.	0 to 9 bars 0 to 131 PSI	0 to 10.1 bars 0 to 146 PSI

POSITION OF PRESSURE P RECORDED ON A/C VERSUS NOMINAL PRESSURE : PN	ACTION TO BE TAKEN	164 T A310-308 NLG 40X14 40X14R16 PN : 11.3 bars (164 PSI)	164 T A310-308 MLG 49X17 PN : 12.9 bars (187 PSI)
P>PN + 0.6 bar	Restore to max of normal operating range if tire is at ambient temperature and recorded pressure confirmed by another pressure gage.	Above 11.9 bars 172 PSI	Above 13.5 bars 196 PSI
PN+0.6 bar>P>PN	NORMAL OPERATING RANGE : N.O.R. No action if within N.O.R. During check or initial inflation. Inflate to max of N.O.R.	11.3 to 11.9 bars 164 to 172 PSI	12.9 to 13.5 bars 187 to 196 PSI
PN>P>95% PN	Inflate to max of N.O.R.	10.7 to 11.3 bars 155 to 164 PSI	12.2 to 12.9 bars 177 to 187 PSI
95% PN>P>90% PN	Inflate to max of N.O.R. Check within 24 hours. If pressure down replace wheel and report on record card.	10.2 to 10.7 bars 148 to 155 PSI	11.6 to 12.2 bars 168 to 177 PSI
90% PN>P>80% PN	Replace wheel.	9 to 10.2 bars 131 to 148 PSI	10.3 to 11.6 bars 149 to 168 PSI
R 80% PN>P>0	Replace wheel. Also replace the adjacent wheel unless you can confirm that aircraft has not rolled with the wheel deflated.	0 to 9 bars 0 to 131 PSI	0 to 10.3 bars 0 to 149 PSI

NOTE : - Tire pressures must be checked and corrected whenever possible when the tires are cold. In practice during aircraft line stop, when the tires are hot, it is normal that the pressure reading is appreciably higher than with a cold tire ; **UNDER NO CIRCUMSTANCES DEFLATE TIRE.**
If pressure of a hot tire is less than or equal to the pressure specified for a cold tire, such a tire is definitely faulty (leakage or puncture), and must be replaced and checked.
If a tire is found to be abnormally hot or merely much hotter than the other tires on the same aircraft it must also be removed and checked.

- Pressure drop for the tire-wheel assembly must be less than 5% of the specified pressure over a period of 24 hours for an even temperature.
If the pressure drop exceeds 5% over a 24 hour period the tire-wheel assembly must be removed from the aircraft and another one installed.
On removed wheel, check :
  - For leaks between tire and wheel
  - For leakage on wheel (at seal between the two half wheels).

NOTE : If for any reason, it is necessary to reinflate a hot tire, the pressure reading will be higher than the nominal pressure value but should be within a same range.
In such a case, we recommend you proceed as follows :
- Record the pressure of all the tires.
- Note the maximum pressure value of any tire.
- Any tire with a pressure 10 per cent below this maximum noted pressure value has to be re-inflated at this maximum value.
- Record it in the logbook.

WARNING : **DO NOT REDUCE PRESSURE OF A HOT TIRE. THE RECORD OF THE INFLATION PRESSURE FOR COMPARISON PURPOSE HAS TO BE MADE AT LEAST ON TIRES INSTALLED ON A SAME LANDING GEAR.**

(e)Check tires for correct condition
- Check valve for leakage.
- Check that valve thread is undamaged and fully tighten valve cap. The cap protects the valve against dirt and leakage.
- Do not inflate tires when temperature is below 0° as humidity entering the valve may change to ice and cause leakage.
- Carefully check tire tread and side walls. Check for cuts, remove all foreign objects (stones, nails, pieces of glass) which may be embedded in tire using a screwdriver, taking care not to enlarge hole.

R

The depth of damage shall determine whether the tire must be repaired or scrapped.

NOTE : Refer to tire utilization limits specific to tire type/make as tire internal structure and rubber thickness vary with the make. Consequently standard requirements cannot be applied to all tire makes and be used as criteria for rejection, removal or continued service.

(f)Remove any tire showing evidence of tread bulge (mark bulge prior to deflating tire).
- Check for any wheel alignment faults evidenced by uneven tread wear (if necessary remove and turn tire).
- Furthermore check for any abnormal wear resulting from incorrect brake adjustment.
- Make certain that wheel is undamaged and that no part of the gear could damage the tire.
- In addition check the wheel well (damage to well caused by rotation of wheel).

2. Criteria for Tire Utilization Limits

CAUTION : TIRES THAT ARE SUBJECTED TO ANY OVERSPEED EVENT, I.E. A SINGLE TAKE-OFF OR LANDING BEYOND TIRE RATED SPEED, MUST BE WITHDRAWN FROM AIRCRAFT IMMEDIATELY AFTER THIS EVENT AND RETURNED TO TIRE MANUFACTURER FOR INSPECTION, AND SUBSEQUENT APPROVAL FOR RETURN INTO SERVICE OR DISPOSAL.

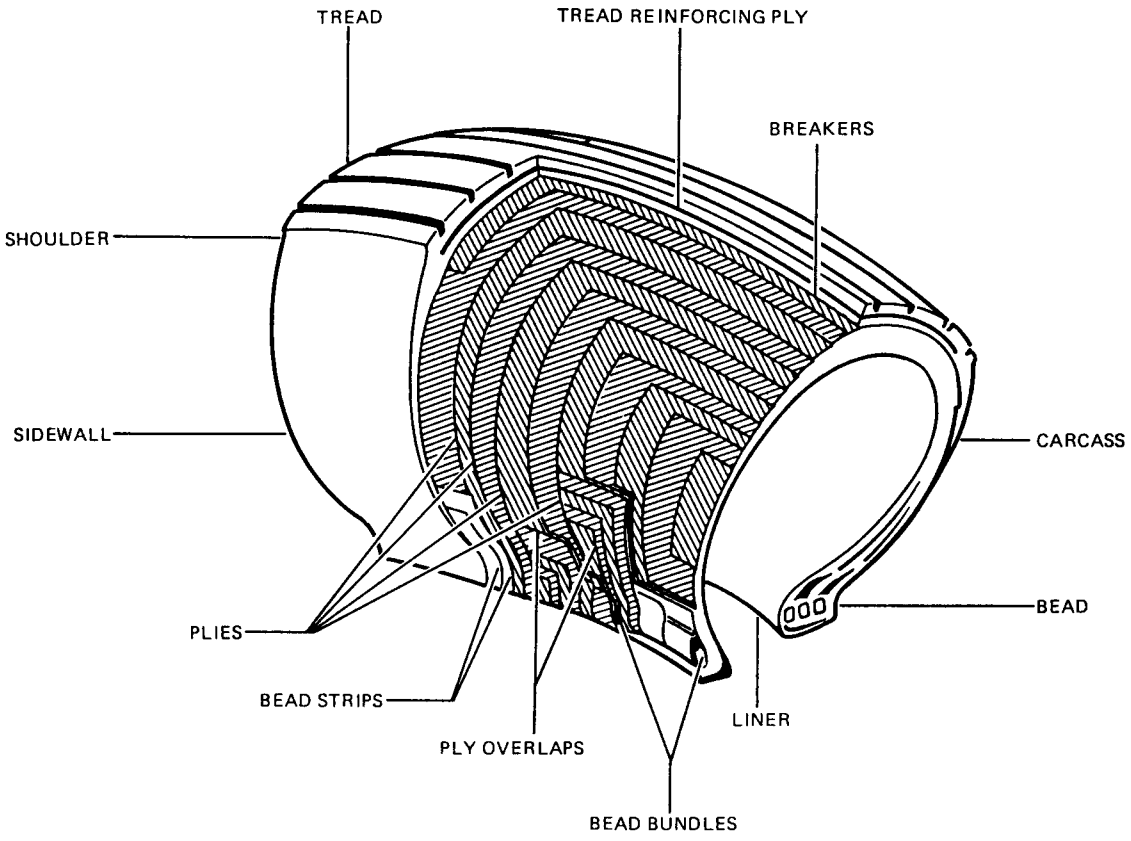
A. Reason for the Job
Tires mounted on the aircraft must be inspected to determine their suitability for continued trouble-free operation.
Whenever a tire is removed, the interior and bead area must also be inspected.
As a result of these checks it must be decided whether :
- the tire may remain in service
- the tire may return to service after minor repair by the user.
- the tire must be removed :
  - either to be sent to the retreader, who will decide as to its condition and whether it may be repaired :
  - or for scrapping.

NOTE : It is necessary to replace the tires if the speed rating specified by the manufacturer is exceeded.

B. Equipment and Materials

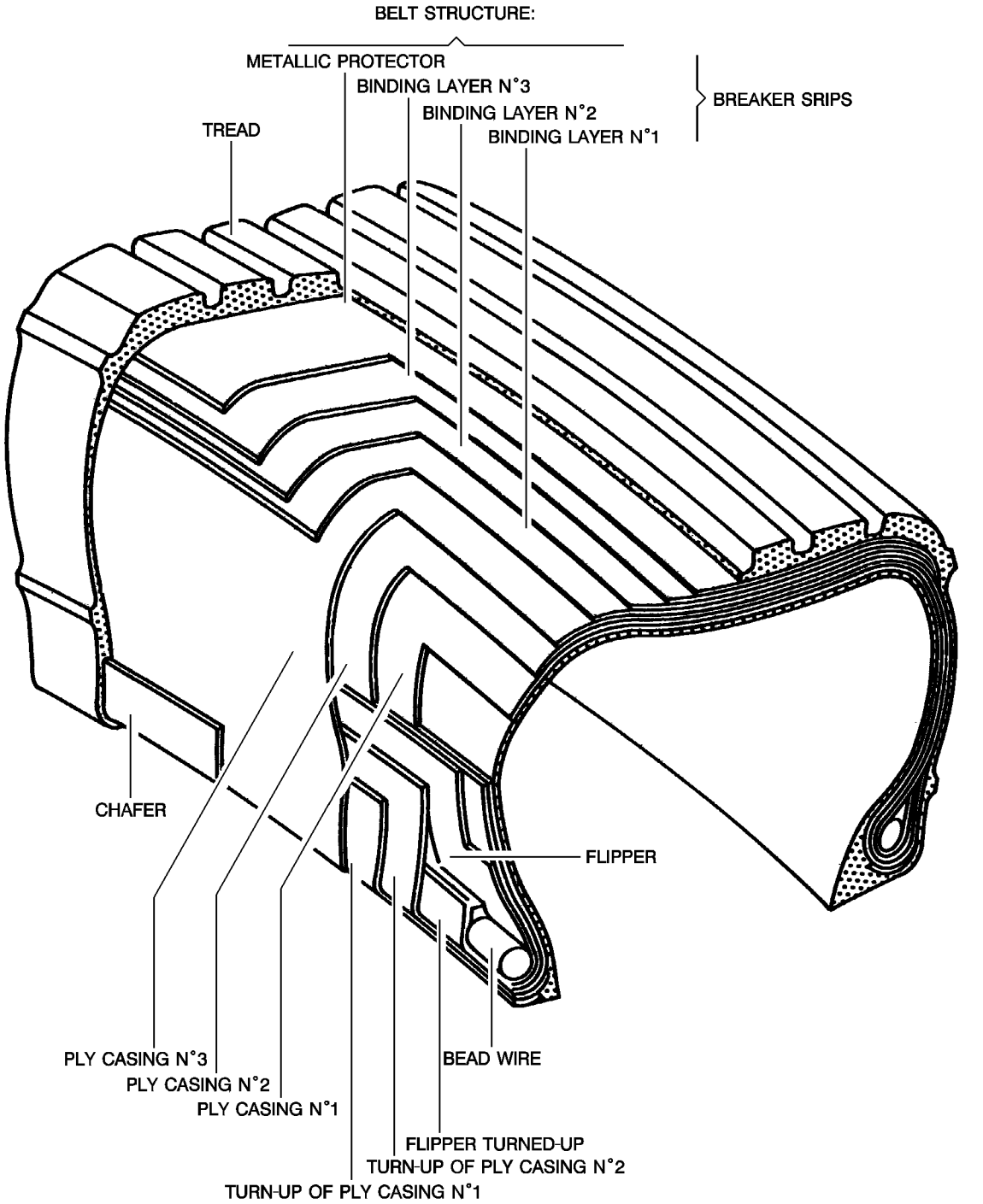
ITEM	DESIGNATION
R A. Material No. 11-008	Cleaning Agents (Ref. 20-31-00)
Referenced Procedure	
- 12-14-32, P. Block 1	Landing Gear Replenishing

C. Procedure
(1)Inspect tires (Ref. Fig. 601, 602)
(a)Inspect tires for air leakage, abrasion, uneven wear, cuts and flat spots.
(b)Check that tire pressure is within specified limits (Ref. 12-14-32, P. Block 1).
(c)Check tire wear (center groove patterned tire) (Ref. Fig. 603, 604)
1 The wear indicator on center groove patterned tires is the center and adjacent grooves.
2 When the tire is to be run to its remould limits, the tire should be removed when the center groove, or part of it, has disappeared.
3 When the tire is to be run to maximum wear limits, the tire should be run to the base of grooves which are adjacent to center groove. A tire which is to be run to maximum wear limits shall be marked with a yellow triangle on the sidewall.
(d)Check tire wear (center rib patterned tire) (Ref. Fig. 603, 604)
1 The wear indicators on center rib patterned tires are the grooves adjacent to the center rib and the tread reinforcing ply.
2 When the tire is to be run to its remould limits the tire should be removed when the grooves adjacent to the center rib are barely visible on any part of the tire.



BM5 32 41 00 6 AAM0 – 01

Bias Tire - General Description
Figure 601



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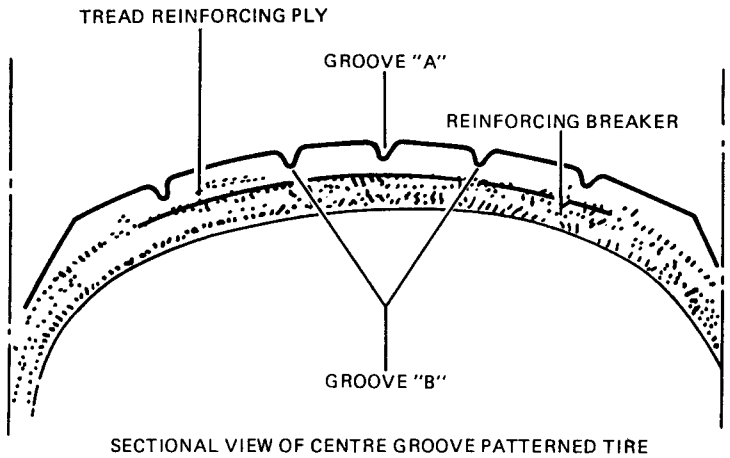
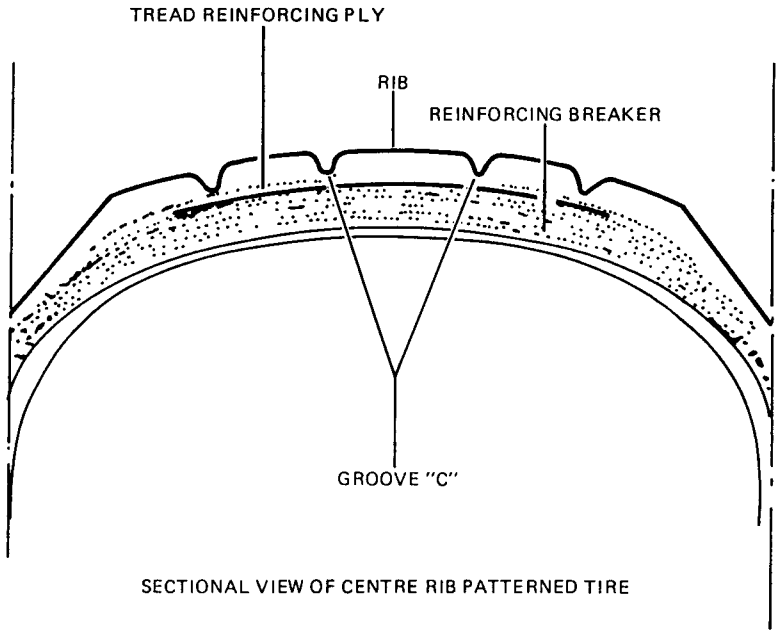
Radial Tire - General Description
Figure 602



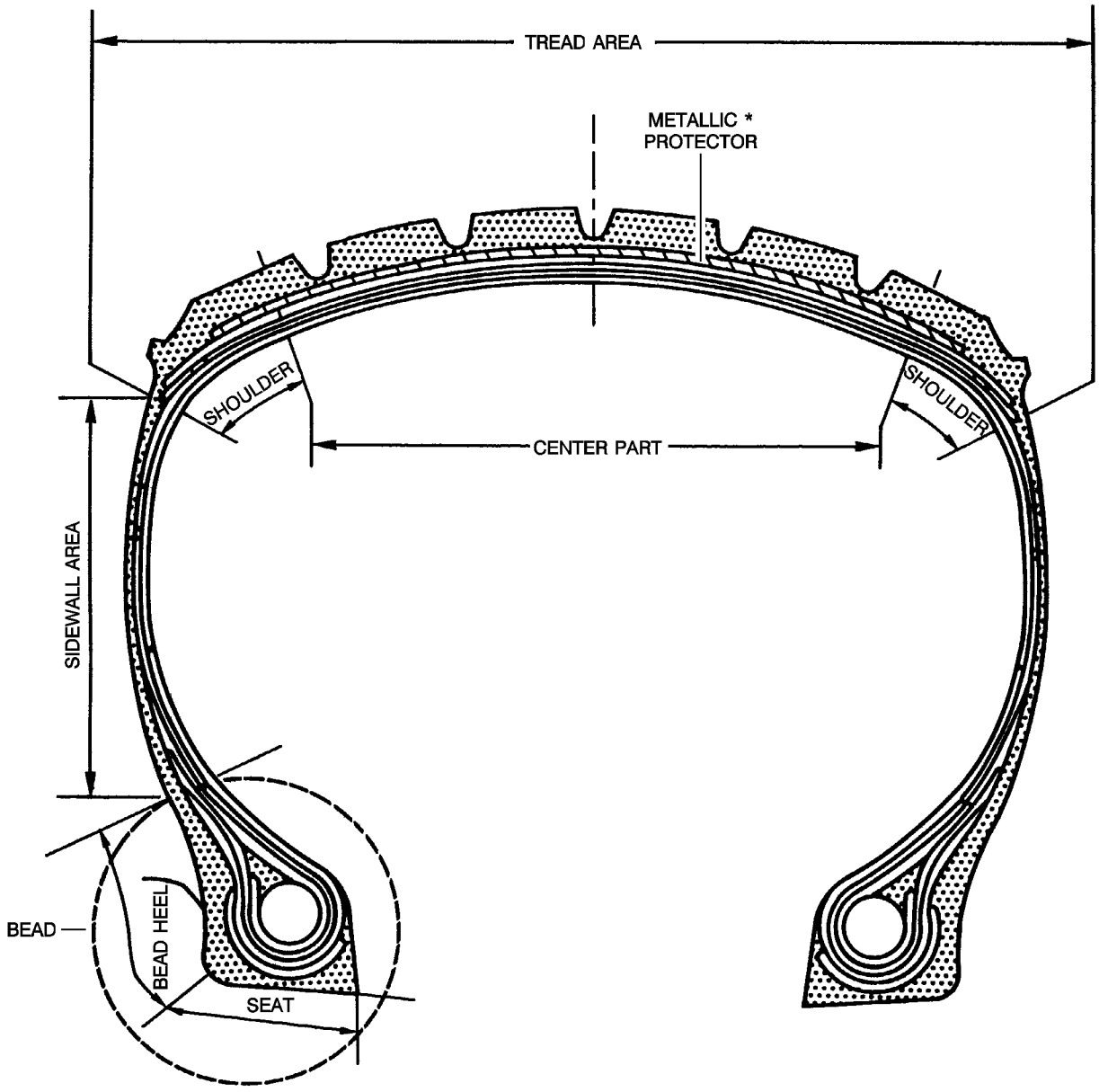
SECTIONAL VIEW OF CENTRE GROOVE PATTERNED TIRE



SECTIONAL VIEW OF CENTRE RIB PATTERNED TIRE

BM5 32 41 00 6 ACM0 – 01

Bias Tire - Sectional View - Groove Identification
Figure 603



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* : THE METALLIC PROTECTOR IS OPTIONAL, AND DEPENDING ON TIRE MANUFACTURER MAY NOT BE USED ON A RADIAL AIRCRAFT TIRE.

Radial Tire - Sectional View
Figure 604

3 When the tire is to be run to maximum wear limits, the tire should be removed when the tread reinforcing ply become visible. A tire which is to be run to maximum wear limits shall be marked with a yellow triangle on the sidewall.

(2)Description of tire wear and deterioration characteristics
(Ref. Fig. 605, 606, 607)
(Ref. Fig. 608)
NOTE : This data is given for information only. Refer to the applicable vendor data for tire utilization limits.

(a)Normal wear
An equal wear of the tread shows that the tire maintenance was correct during the tire life.

(b)Uneven wear
1 Usually, under-inflation (inflation pressure less than 90 % of the nominal pressure (Refer to table of pressure) (Ref. 12-14-32, P. Block 1) can cause:
- too much tread shoulder wear,
- high deflection of the tire, with subsequent heat build-up which can cause important internal tire damage.

2 Over inflation (when the tire pressure is more than 105% of the nominal pressure (Refer to table of pressure) (Ref. 12-14-32, P. Block 1) can cause:
- cause too much wear on the center of the tire tread,
- increase the risk of Foreign Object Damage (FOD) to the tire.

(c)Maximum speed of utilization
On A310 and A300-600 aircraft, the maximum operation speed is 225 MPH (195 KTS).

R NOTE : This limitation is valid even for tires marked 235 MPH (204 KTS)
R or 245 MPH (213 KTS).

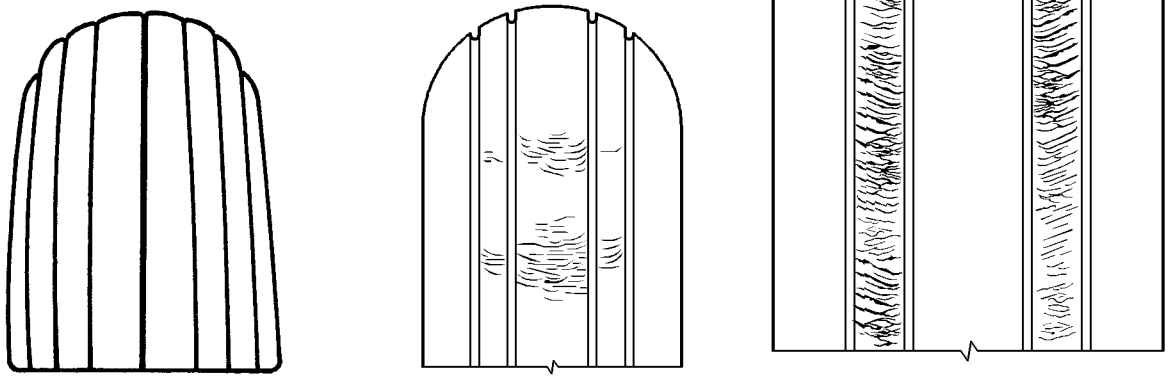
(d)Tread damage
1 Flat spots
Flat spots are caused by locking of the wheel during braking, hard touch down or sudden steering maneuvers (for the NLG tires).

2 Peeled rib
A peeled rib usually starts with a cut in the tread and causes a circumferential delamination of the tread rib away from the tire carcass.

3 Tread rubber reversion
Tread rubber reversion is usually caused by wheel locking on wet or icy runways.
It is an oval-shaped area in the tread (same as a flat spot) where rubber shows signs of burns (usually caused by hydroplaning on wet or icy runways).

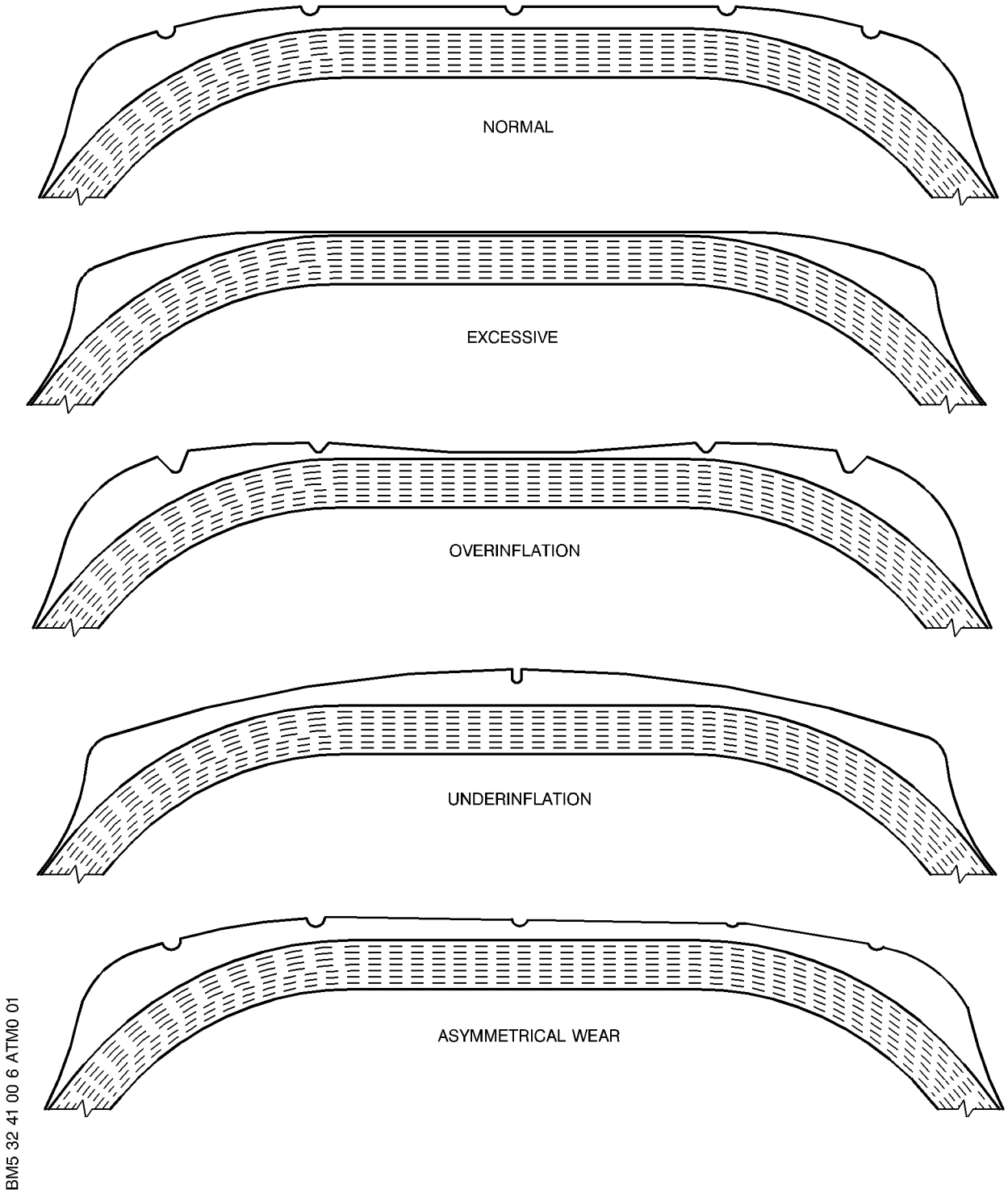
4 Thrown tread
WARNING : REMOVE THE VALVE CORE WHEN THE TIRE IS FULLY DEFLATED. REMOVAL OF THE WHEEL VALVE CORE WHEN THE TIRE IS INFLATED CAN EJECT THE CORE WITH HIGH SPEED AND FORCE. THIS CAN CAUSE INJURY TO PERSONS.

WARNING : ALWAYS GO NEAR THE WHEELS FROM AN OBLIQUE ANGLE, IN THE DIRECTION OF THE TIRE SHOULDERS. IF YOU DO NOT OBEY THIS INSTRUCTION AND DAMAGE OCCURS TO THE TIRE, PIECES OF THE



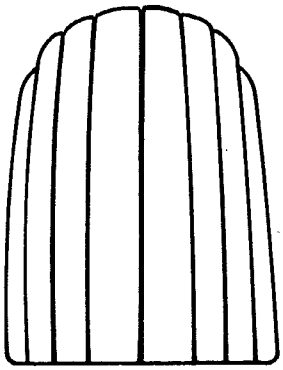
BM5 32 41 00 6 AEM0 01

R Tire Wear and Deterioration Characteristics
Figure 605

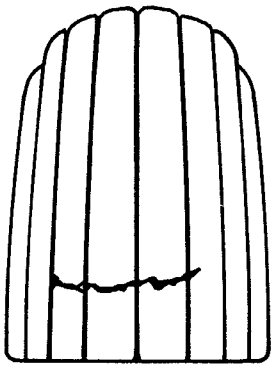


BM5 32 41 00 6 ATM0 01

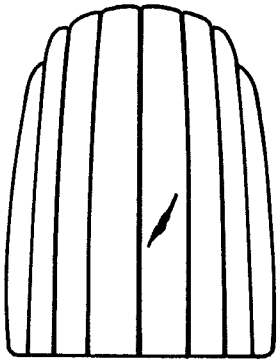
R Tire Wear and Deterioration Characteristics
Figure 606



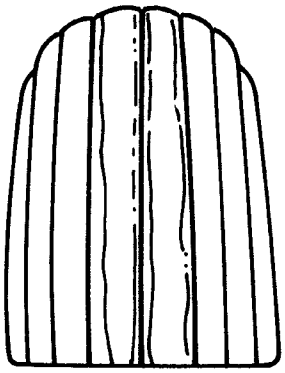
NEW TREAD



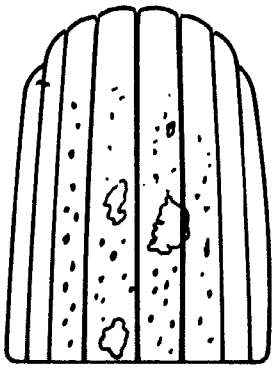
OPEN TREAD SPLICE



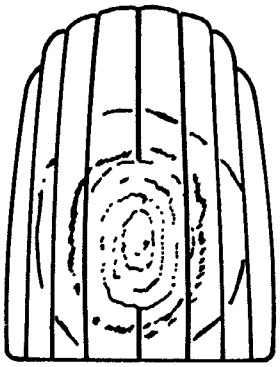
CUTS



TREAD FLAKING AND CHIPPING



TREAD CHUNKING



FLAT SPOT

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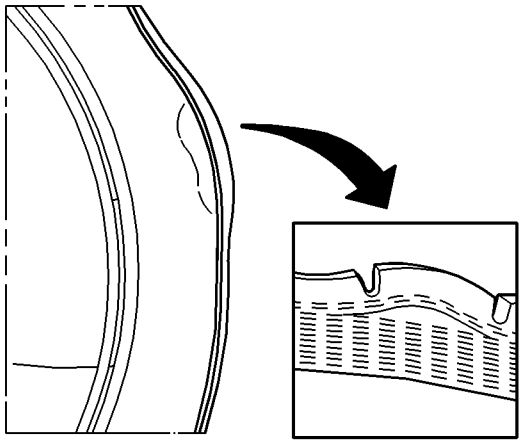
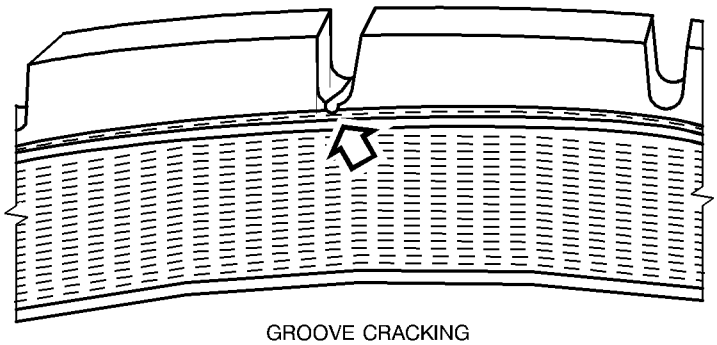
R

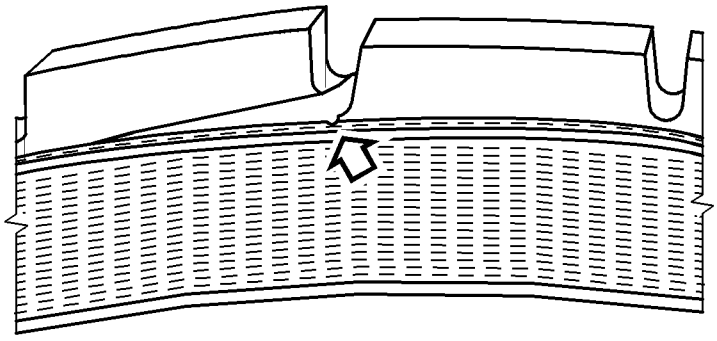
Tire Wear and Deterioration Characteristics
Figure 607



BLISTER OR BULGE



GROOVE CRACKING



RIB UNDERCUTTING

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R

Tire Deterioration Characteristics
Figure 608

TIRE CAN CAUSE YOU INJURY.

Thrown tread is a total or partial loss of tread that lets you see the carcass plies.

Early signs of tread separation can occur in the form of tread bulges, local uneven wear (depression) or local tread/sidewall rubber split.

5 Tread cuts

WARNING : DO NOT REMOVE OBJECTS FROM A PRESSURIZED TIRE. THE PRESSURE CAN EJECT OBJECTS WITH MUCH FORCE AND THUS CAUSE INJURY.

The definition of cut limits is based on the service experience of each vendor. Because of the different technologies and tire constructions, damage tolerance can be different for each manufacturer. Refer to the relevant vendor's manual for details.

Foreign objects that are on the runway, taxiway and parking areas can cause cuts to the tires.

If the tire has an unwanted object in the tread or sidewall:

- Make a mark of the area where you can see the object with a crayon.
- Remove the wheel and make sure that the object does not move.
- Move the wheel to a safe area.
- Deflate the tire before you remove the object.
- Do an inspection of the tire at the tire shop.

6 Chevron cutting

Chevron cutting is a tread damage (large number of small Z-,S- or V-shaped cracks) usually in a tire-footprint area. Chevron cutting is usually caused by running and/or braking on cross-grooved runways.

7 Groove cracking

Groove cracking can occur after environmental aggression of the rubber (ozone attack for example) or too much mechanical loading of the tire. These cracks occur at the bottom of the tread groove.

8 Rib undercutting

Rib undercutting is an extension of groove cracking caused by mechanical loading that continues below a tread rib. It can cause tread chunking, peeled rib or thrown tread.

9 Open tread splice

An open tread splice is a crack in the rubber where there is separation of joint or splice.

10 Tread chipping and chunking

This is a condition that you can see at the edge of the tread rib where small quantities of rubber start to separate from the tread surface. Tread chunking can be caused by high lateral loading of the tire sometimes caused by tight turning.

11 Contamination

This can be caused by brake oil, tar oil, solvent, chemicals and hydrocarbon based products. The tire must be cleaned with Material No. 11-008.

(e)Sidewalls damage

1 Cuts or cracks on the sidewall

Foreign objects on the operating surfaces frequently cause sidewall cuts.

2 Weathering and radial cracking

Weathering and cracking occur when tires are in aggressive environmen-

tal conditions.

3 Blisters and bulges

They usually are a sign of separation of components.

(3)Tire utilization limits

(Ref. Fig. 609)

(a)Tread surface

CONDITION	OBSERVATION / DAMAGE	ACTION
Normal wear	At main base (or maintenance base) if: - The tread wear is at the bottom of groove at one or more points or - You can see the reinforced ply (bias tire) or the protector ply (radial tire) at one or more points of the tread surface.	Remove the tire. NOTE : Tires having reached above limits must be replaced immediately. A single return to base (any station where a spare wheel is available) flight is permitted if aircraft is in outside station.
Uneven wear	At main base (or maintenance base) if the wear limits are reached.	Remove the tire. NOTE : Tires having reached above limits must be replaced immediately. A single return to base (any station where a spare wheel is available) flight is permitted if aircraft is in outside station.

(b)Tread damage

DAMAGE	OBSERVATION	ACTION
Flat spots	- If the flat spot goes to the reinforcing ply (bias tire) or the protector ply (radial tire).	Remove the tire.
	- If the flat spot does not go to the above limit and if there is sufficient groove depth in the flat spot area.	Keep the tire on the aircraft.
Tread rubber reversion	During the check: - If the tread rubber reversion goes to the reinforcing ply	

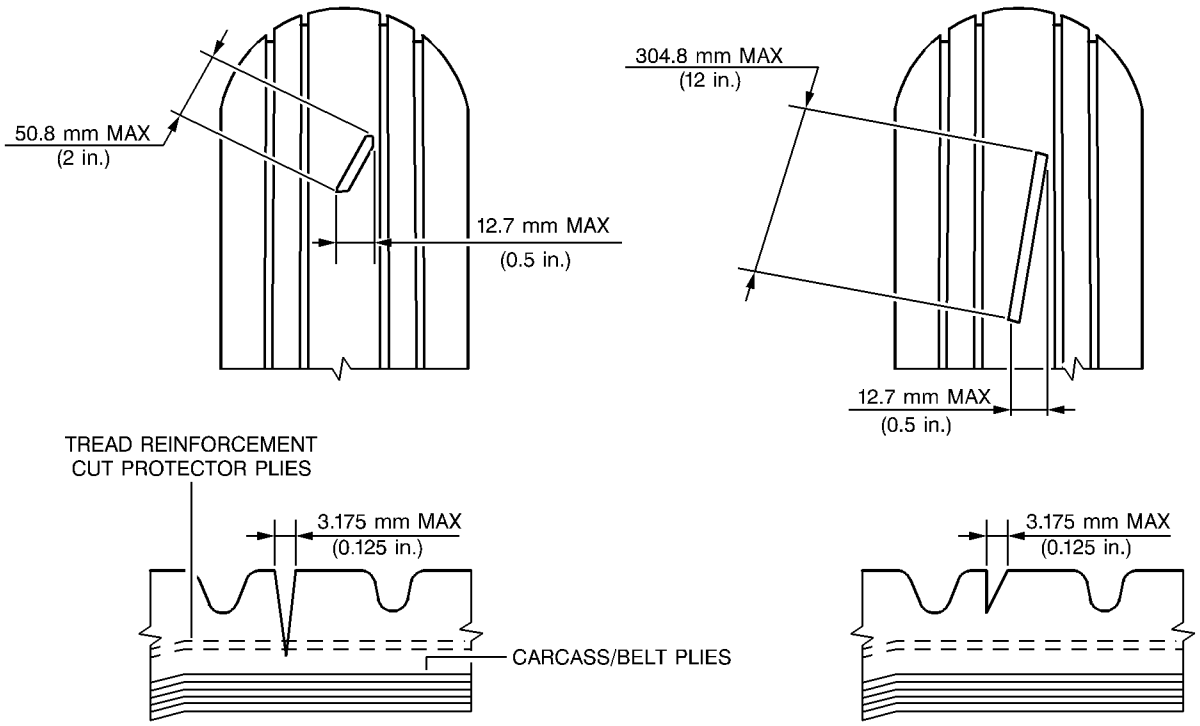
DAMAGE	OBSERVATION	ACTION
	(bias tire) or the protector ply (radial tire) or - If there is shimmy or unbalance.	Remove the tire.
Thrown tread		Remove the tire immediately. NOTE : It is necessary to get pieces of tread from the airport authorities and send them back to home base so that the vendor can make an analysis, if necessary. NOTE : If the tire is still inflated after the aircraft is parked, it is necessary to wait three hours (for tire cooling) before you record the pressure. Then, deflate the tire before removal of the wheel assembly.
Tread cuts	If there are no cut limits specified in the documentation and if: (1)The cut or embedded object lets you see or goes into the reinforcing ply (bias tire) or protector ply (radial tire): - The cut goes into the outer casing ply (bias tire) or the outer layer (radial tire). - The cut length is more than 50.8 mm (2 in.), or - The cut width is more than 3.175 mm (0.125 in.), or - The cut is not in the limits of one rib. - The cut is in the limits of one rib and the distance between its two ends is more than 12,7 mm (0.5 in.) when measured in the radial direction.	Remove the tire.

DAMAGE	OBSERVATION	ACTION
	(2)The cut or embebbed object does not go into the reinforcing ply (bias tire) or to protector ply (radial tire): - The cut length is more than 304.8 mm (12 in.), or - The cut width is more than 3.175 mm (0.125 in.), or - The cut is not in the limits of one rib. - The cut is in the limits of one rib and the distance between its two ends is more than 12.7 mm (0.5 in.) when measured in the radial direction.	Remove the tire.
Chevron cutting	Because of different technologies and tire constructions, damage tolerance can be different for each manufacturer an even for each tire reference of a given manufacturer. Refer to the applicable vendor manual for details. If there are no cut limits specified in the documentation and if: - The tire is at the limits given for tread cuts. - You can see the tread reinforcing ply (bias tire) or the protector ply (radial tire).	Remove the tire.
Groove cracking	During the check: - If groove cracking lets you see the reinforcing ply (bias tire) or the protector ply (radial tire), or - Groove cracking undercuts the adjacent rib.	Remove the tire.
Rib undercutting		Remove the tire when the crack goes below the rib.
Open tread splice		Remove the tire.
Tread	If you can see the fabric	Remove the tire.

DAMAGE	OBSERVATION	ACTION
chipping and chunking		
Contamination	After cleaning, check the rubber in the contamined area: - The rubber feels soft or spongy when probed, or - There are bulges.	Remove the tire.

(c)Sidewall damage

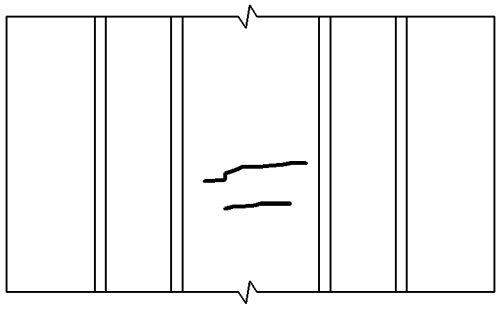
DAMAGE	OBSERVATION	ACTION
Cuts or cracks on the sidewall	If you can see the sidewall cords or if there are damaged.	Remove the tire.
Weathering and radial cracking	If you can see the sidewall cords.	Remove the tire.
Blisters and Bulges		Remove the tire immediately. Put marks on the damage area before you deflate the tire for easy identification and analysis by the vendor.



CIRCUMFERENTIAL CUTS

TIRES WITH CUTS THAT PENETRATE THE TREAD REINFORCEMENT/CUT PROTECTOR PLIES ARE NOT SERVICEABLE IF :
(A) CUT EXCEEDS THE ABOVE LIMITS.
(B) CUT PENETRATE THE CARCASS PLIES (BIAS) OR BELT PLIES (RADIAL).
(C) CUT IS NOT CONTAINED WITHIN ONE RIB

TIRES WITH CUTS THAT DO NOT EXPOSE FABRIC ARE NOT SERVICEABLE IF THEY EXCEED THE ABOVE LIMITS.



TRANSVERSE CUTS

(A) TIRES WITH TRANSVERSE CUTS THAT ARE CONTAINED WITHIN A RIB AND PENETRATE INTO THE CARCASS PLIES (BIAS) OR BELT PLIES RADIAL ARE NOT SERVICEABLE.

(B) TIRES WITH CUTS THAT EXTEND ACROSS A RIB FROM CROOVE TO GROOVE WHICH ARE DEEPER THAN THE GROOVE ARE NOT SERVICEABLE.

BM5 32 41 00 6 AWM0 02

Tire Utilization Limits - Trend Cuts Depth and Length Limits
R Figure 609

MAIN WHEEL TIE BOLT - DEACTIVATION/REACTIVATION

R Ref. MMEL - ATA 32 - ITEM 5 - (Main wheel tie bolt)

CAUTION : THIS PROCEDURE IS TO BE USED ACCORDING TO THE REQUIREMENTS OF THE MMEL.

1. One Tie Bolt on One Main Wheel is Missing.

A. Equipment and Materials

ITEM	DESIGNATION
Referenced Procedures	
- 12-37-32, P. Block 1	Wheel Replacement

B. Procedure

(1)Job Set-up

Not applicable

(2)Check of the wheel before dispatch

(a)As soon as the defective tie bolt is discovered, remove the associated wheel (Ref. 12-37-32, P. Block 1).

(b)Check that no broken pieces remain stuck between the wheel and the brake.

(c)The related complete wheel must be carefully inspected and no damage, even minor, is authorized for dispatch.

(d)The concerned wheel must be then installed, and all the remaining tie bolts must be RETORQUED to 18 m.daN (132.75 lbf.ft) with anti size compound MIL-T-83483.

(e)Install the wheel (Ref. 12-37-32, P. Block 1).

(3)Check of the wheel after return to home base.

(a)Remove the defective wheel (Ref. 12-37-32, P. Block 1).

(b)The complete wheel must be carefully inspected and all tie bolts, including the missing are must be replaced and RETORQUED to 22 m.daN (162 lbf.ft) with anti size compound MIL-T-5544.

(c)Install the wheel (Ref. 12-37-32, P. Block 1).

(4)Close-up

(a)Make certain that working area is clean and clear of tools and miscellaneous items of equipment.

Replacement of the wheels (Ref. 12-37-32, P. Block 1).

Replacement of the wheels (Ref. 12-37-32, P. Block 1).

NORMAL BRAKING - DESCRIPTION AND OPERATION

1. General

(Ref. Fig. 001)
(Ref. Fig. 002)

Braking is Normal when Green high pressure is available, the **BRK/A/SKID** switch is in **NORM/ON** position and the **PARKING BRAKE** control handle is in normal (released) position.

Control is electrical.

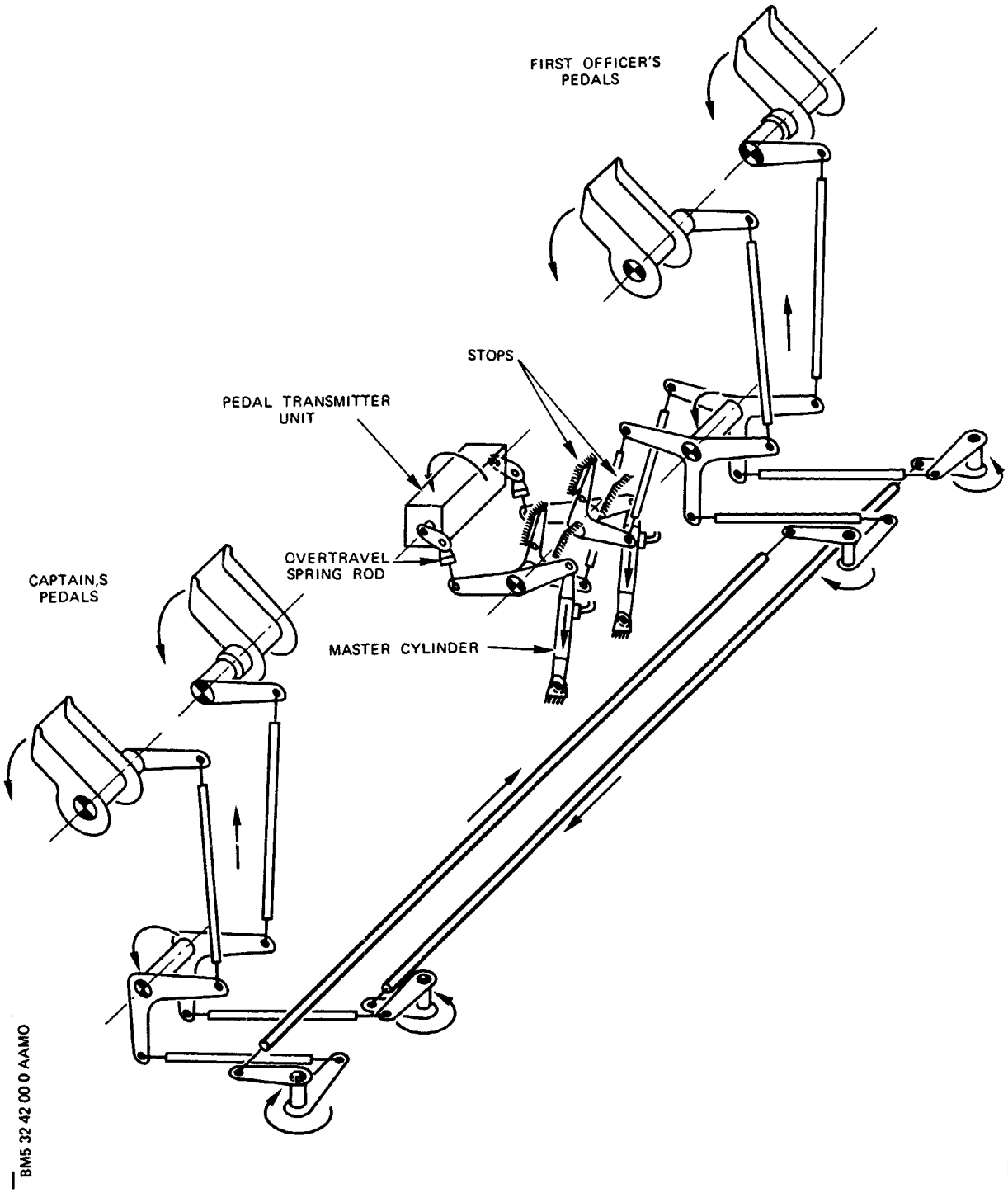
Normal braking uses the first set of brake pistons.

2. Component Location

(Ref. Fig. 003)
(Ref. Fig. 004)
(Ref. Fig. 005)
(Ref. Fig. 006)
(Ref. Fig. 007)
(Ref. Fig. 008)

	FIN	FUNCTIONAL DESIGNATION	PANEL	ZONE	ACCESS DOOR	ATA REF.
	1290	MANIFOLD-NORM BRK RETURN ACCU, L		571		
	1291	MANIFOLD-NORM BRK RETURN ACCU, R		671		
	1295	THROTTLE VALVE-NORM BRK HP		148	148LZ	
	1298	FILTER-NORM BRK HP		147	147SZ	32-42-12
	1300	SELECTOR-BRK AUTOMATIC		148		32-42-13
	1312	MANIFOLD-NORM BRK SERVOVALVE, L		571		
	1313	MANIFOLD-NORM BRK SERVOVALVE, R		671		
	1322	SAFETY VALVE-NORM BRK, WHL1		571		32-42-36
	1323	SAFETY VALVE-NORM BRK, WHL4		671		32-42-36
	1324	SAFETY VALVE-NORM BRK, WHL5		571		32-42-36
	1325	SAFETY VALVE-NORM BRK, WHL8		671		32-42-36
	1326	SAFETY VALVE-NORM BRK, WHL2		571		32-42-36
	1327	SAFETY VALVE-NORM BRK, WHL3		671		32-42-36
	1328	SAFETY VALVE-NORM BRK, WHL6		571		32-42-36
	1329	SAFETY VALVE-NORM BRK, WHL7		671		32-42-36
	1338	BRAKE-WHEEL1		731		32-42-27
	1339	BRAKE-WHEEL4		741		32-42-27
	1340	BRAKE-WHEEL5		731		32-42-27
	1341	BRAKE-WHEEL8		741		32-42-27
	1342	BRAKE-WHEEL2		731		32-42-27
	1343	BRAKE-WHEEL3		741		32-42-27
	1344	BRAKE-WHEEL6		731		32-42-27
	1345	BRAKE-WHEEL7		741		32-42-27
	1346	ACCU-NORM BRK RETURN, L		571		32-42-45
	1347	ACCU-NORM BRK RETURN, R		671		32-42-45
R	1362	MANIFOLD-BRK MASTER VALVE, L		147		32-42-19
R	1363	MANIFOLD-BRK MASTER VALVE, R		148		32-42-19
	1364	CHECK VALVE-NORM BRK RTN, L		147		
	1367	CHECK VALVE-NORM BRK RTN, R		148		
	8GG	SELECTOR VALVE-BRAKE		147		32-42-11

FIN	FUNCTIONAL DESIGNATION	PANEL	ZONE	ACCESS DOOR	ATA REF.
11GG	TRANSMITTER UNIT-BRK PEDAL		122		32-42-47
13GG	SERVOVALVE-NORM BRK, WHEEL2		571		32-42-48
14GG	SERVOVALVE-NORM BRK, WHEEL3		671		32-42-48
15GG	SERVOVALVE-NORM BRK, WHEEL6		571		32-42-48
16GG	SERVOVALVE-NORM BRK, WHEEL7		671		32-42-48
17GG	SERVOVALVE-NORM BRK, WHEEL1		571		32-42-48
18GG	SERVOVALVE-NORM BRK, WHEEL4		671		32-42-48
19GG	SERVOVALVE-NORM BRK, WHEEL5		571		32-42-48
20GG	SERVOVALVE-NORM BRK, WHEEL8		671		32-42-48
21GG	TACHOMETER-WHEEL2		731		32-42-57
22GG	TACHOMETER-WHEEL3		741		32-42-57
23GG	TACHOMETER-WHEEL6		731		32-42-57
24GG	TACHOMETER-WHEEL7		741		32-42-57
25GG	TACHOMETER-WHEEL1		731		32-42-57
26GG	TACHOMETER-WHEEL4		741		32-42-57
27GG	TACHOMETER-WHEEL5		731		32-42-57
28GG	TACHOMETER-WHEEL8		741		32-42-57
29GG	CTL UNIT-BRAKE SYSTEM	94VU	122		32-42-72
38GG	TACHOMETER-NOSE WHEEL, R		711		32-42-66
39GG	TACHOMETER-NOSE WHEEL, L		711		32-42-66
43GG	MOUNT-BRAKE SYSTEM CTL UNIT	94VU	122		
	AUTO BRK/BRK/A/SKD PANEL	400VU			
71GG	IND-BRK YELLOW PRESS TRIPLE	4VU	211		
89GG	MASTER VALVE-NORM BRK, L		147		32-42-19
90GG	MASTER VALVE-NORM BRK, R		148		32-42-19
91GG	TRANSDUCER-NORM BRK PRESS, SYS1 L		571		32-42-21
92GG	TRANSDUCER-NORM BRK PRESS, SYS1 R		671		32-42-21
93GG	TRANSDUCER-NORM BRK PRESS, SYS2 L		571		32-42-21
94GG	TRANSDUCER-NORM BRK PRESS, SYS2 R		671		32-42-21
96GG	SWITCH-BRK/A/SKID	401VU			
	BAND-NLE IN FLIGHT BRAKE		122		



Pedal Control
Figure 001

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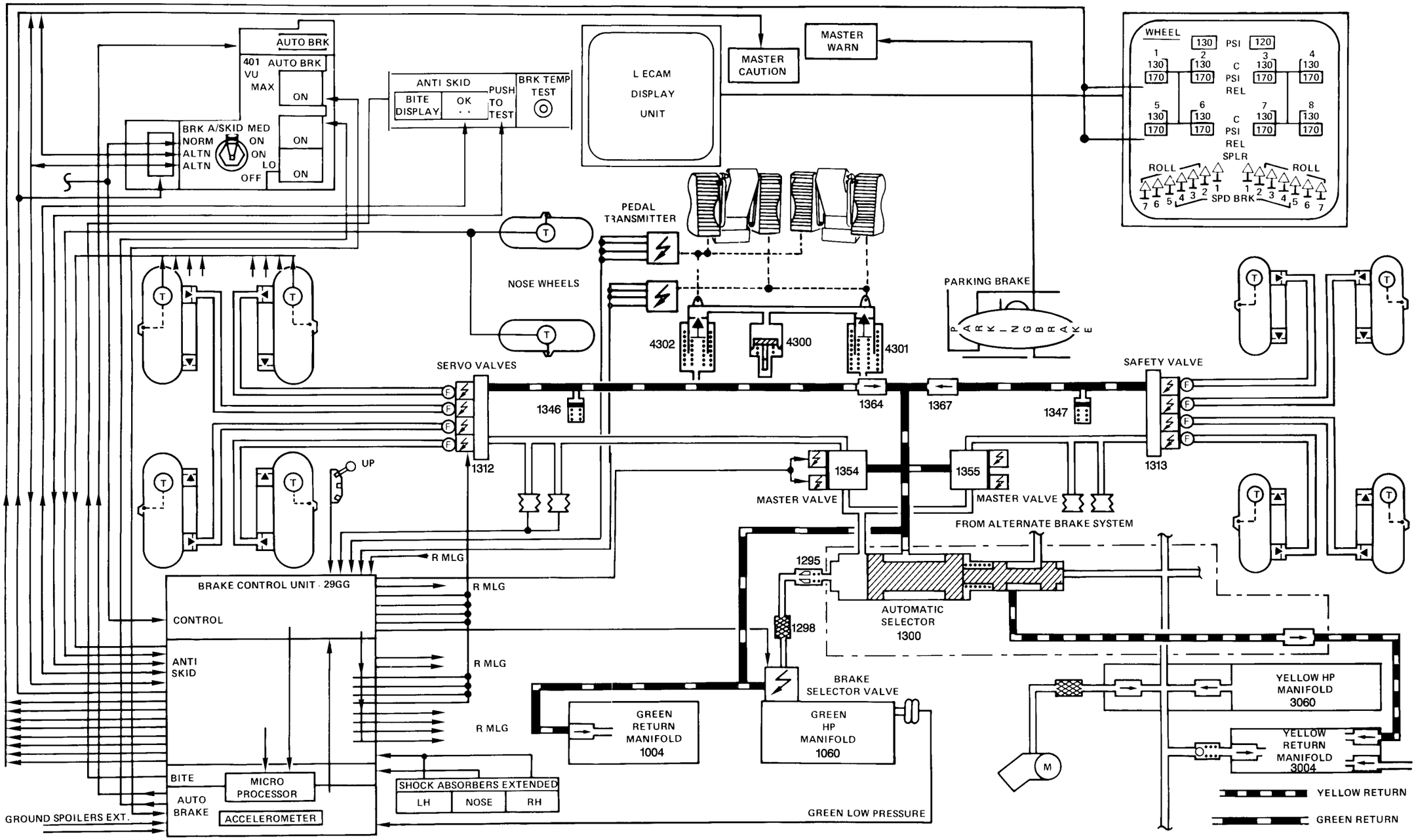
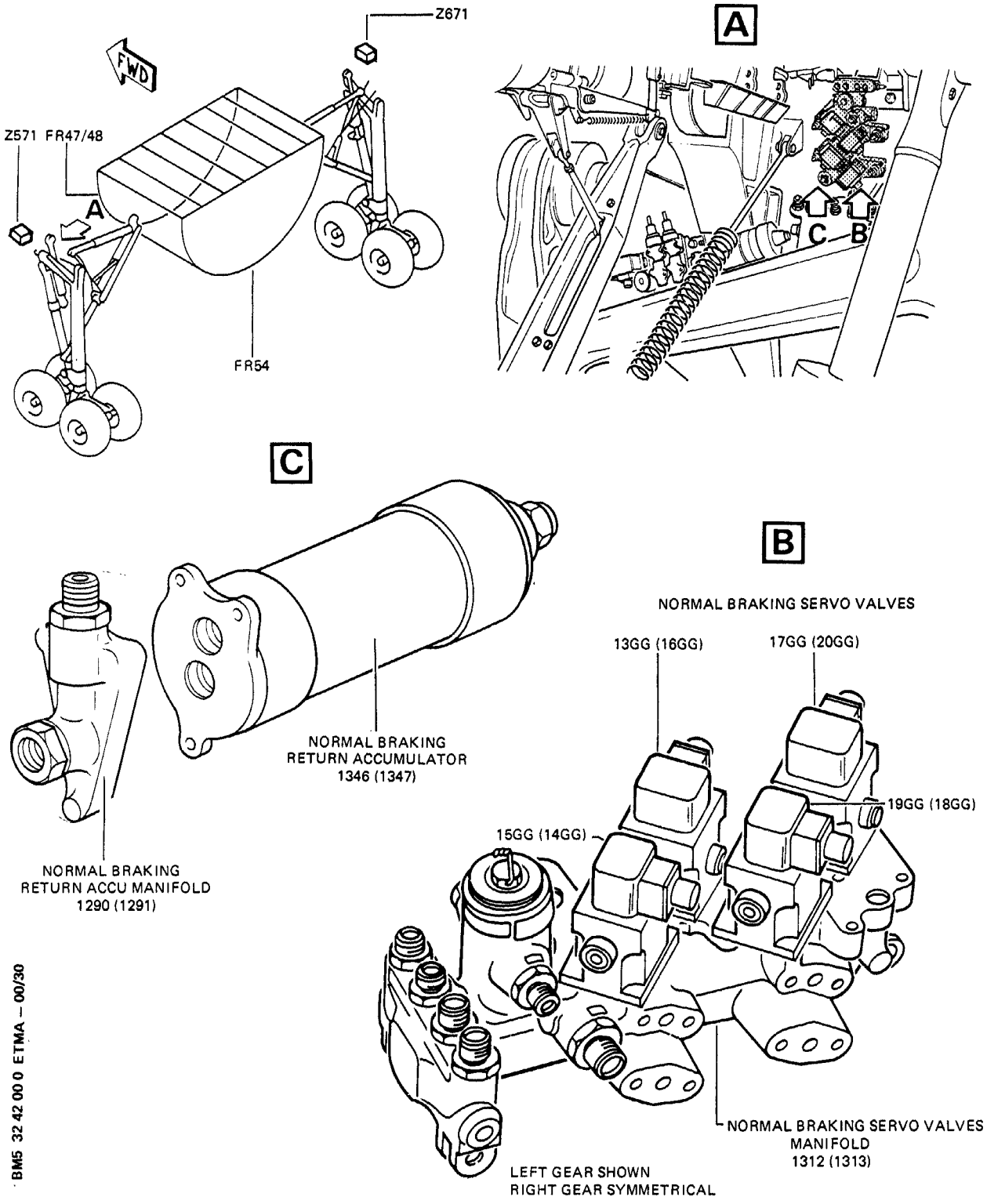


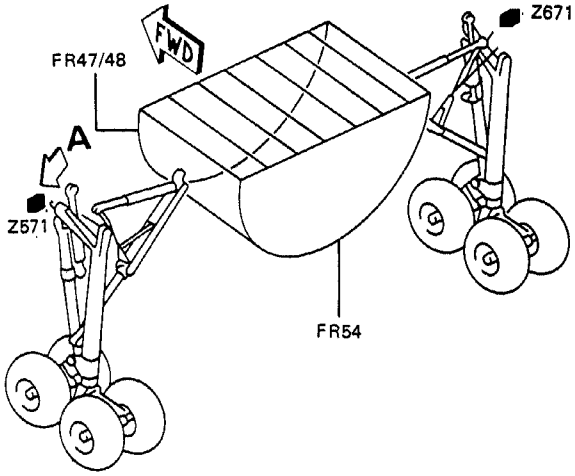
BM5 32 42 00 0 FTM0 01

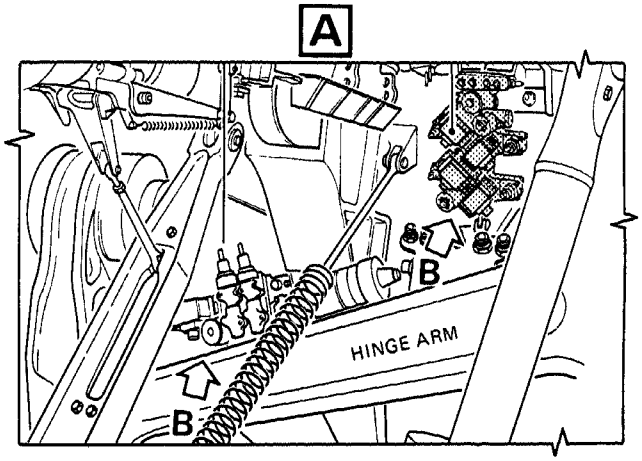
Normal Braking - Schematic
Figure 002

R



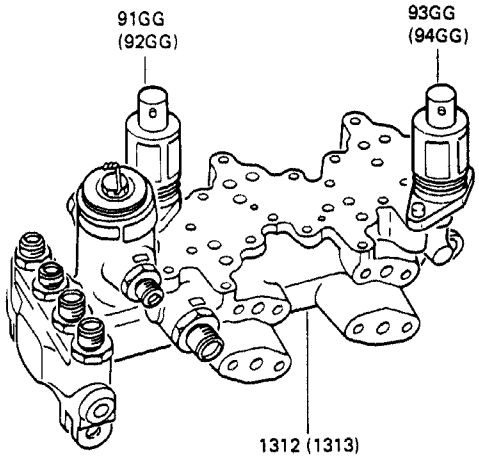
Hydraulic Components - Zones 571/671 (Sheet 1/2)
Figure 003





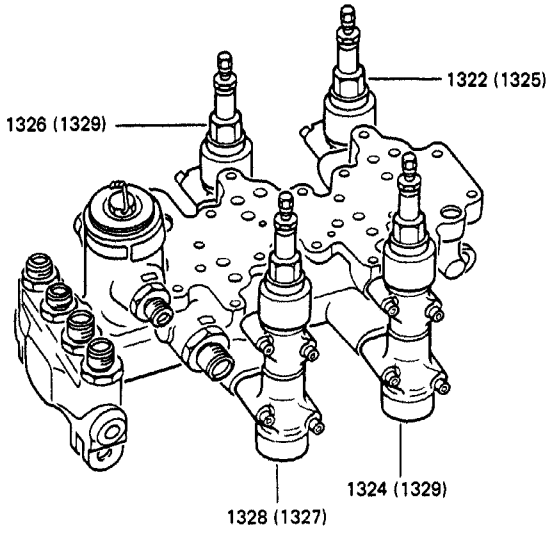
B

NORMAL BRAKING
PRESSURE TRANSDUCER



B

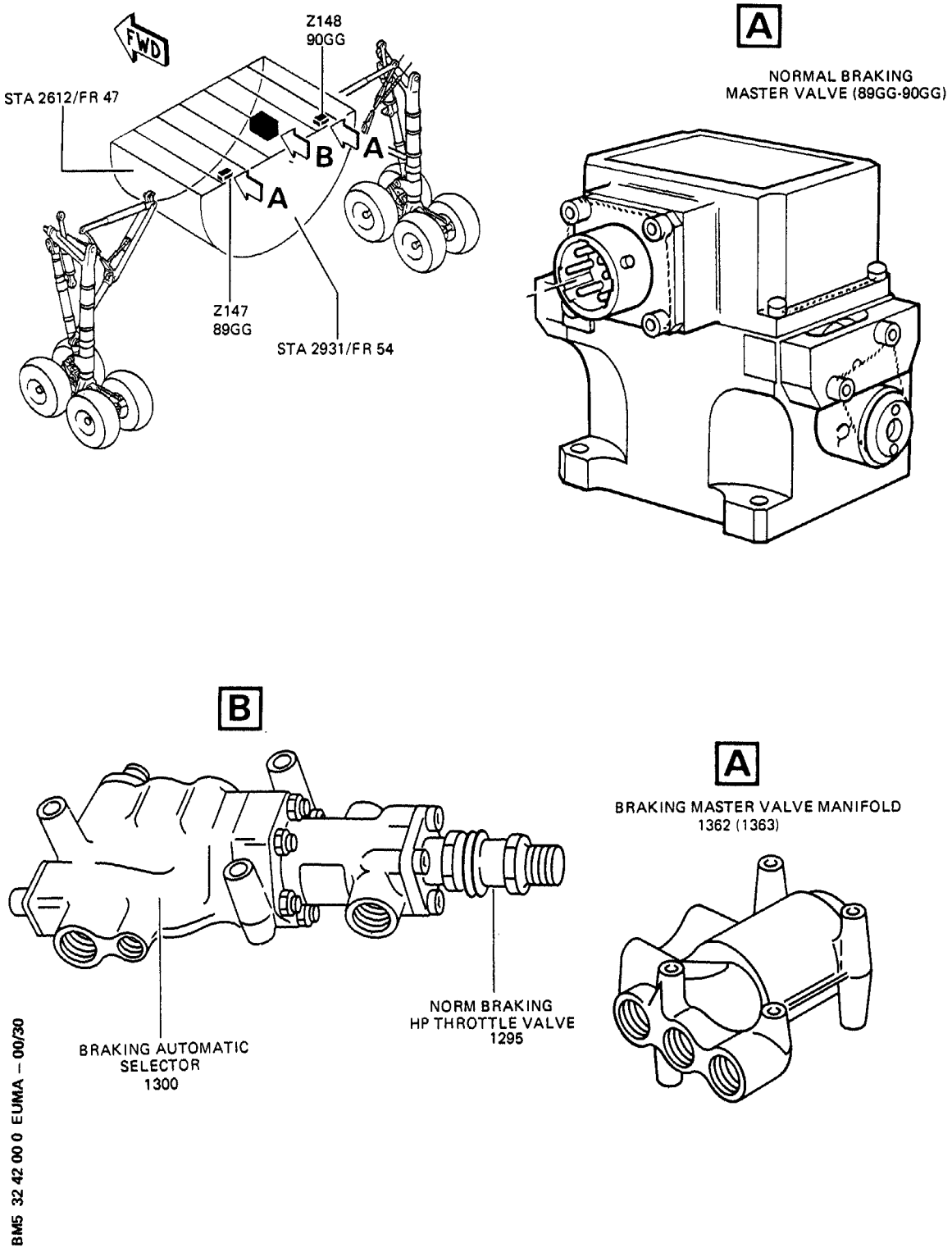
NORMAL BRAKING SAFETY VALVES



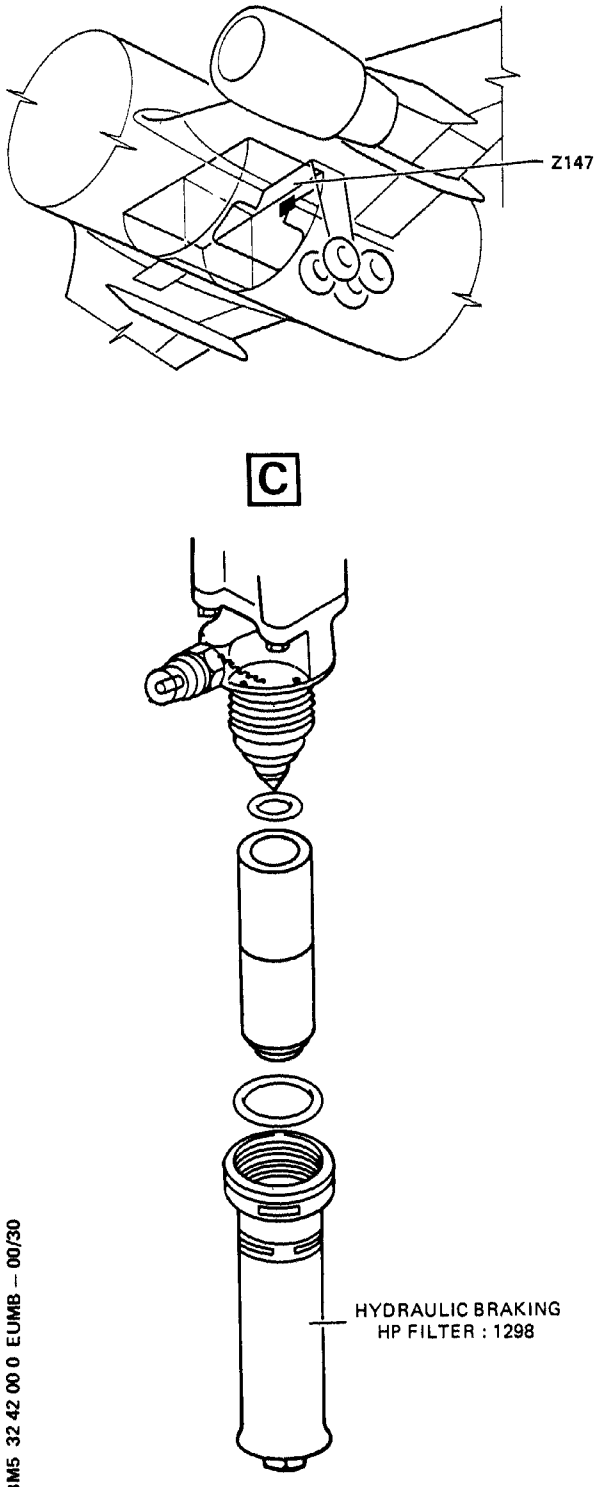
LEFT GEAR SHOWN
RIGHT GEAR SYMMETRICAL

BM5 32 42 00 0 ETMB – 00/30

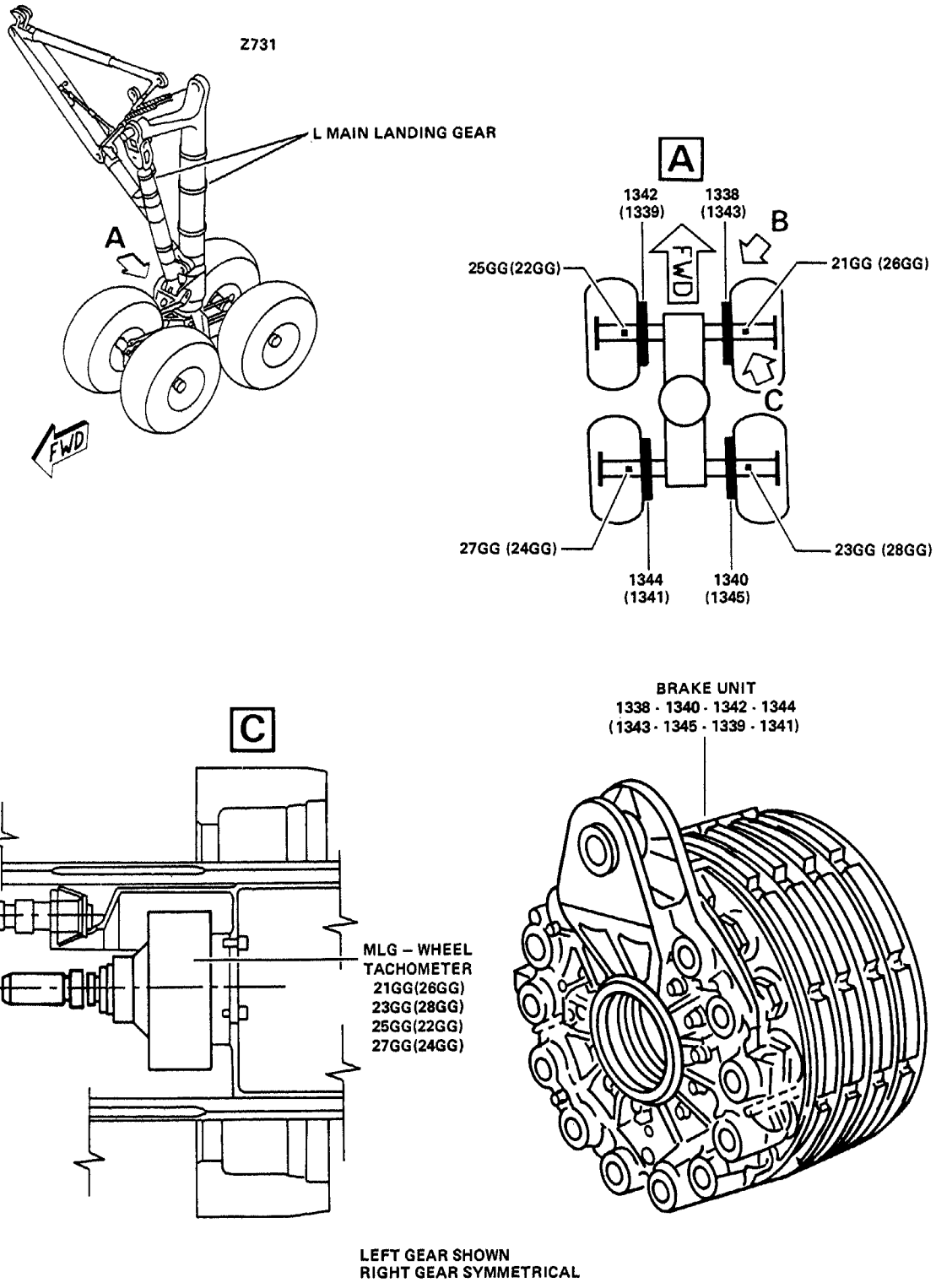
Hydraulic Components - Zones 571/671 (Sheet 2/2)
Figure 003



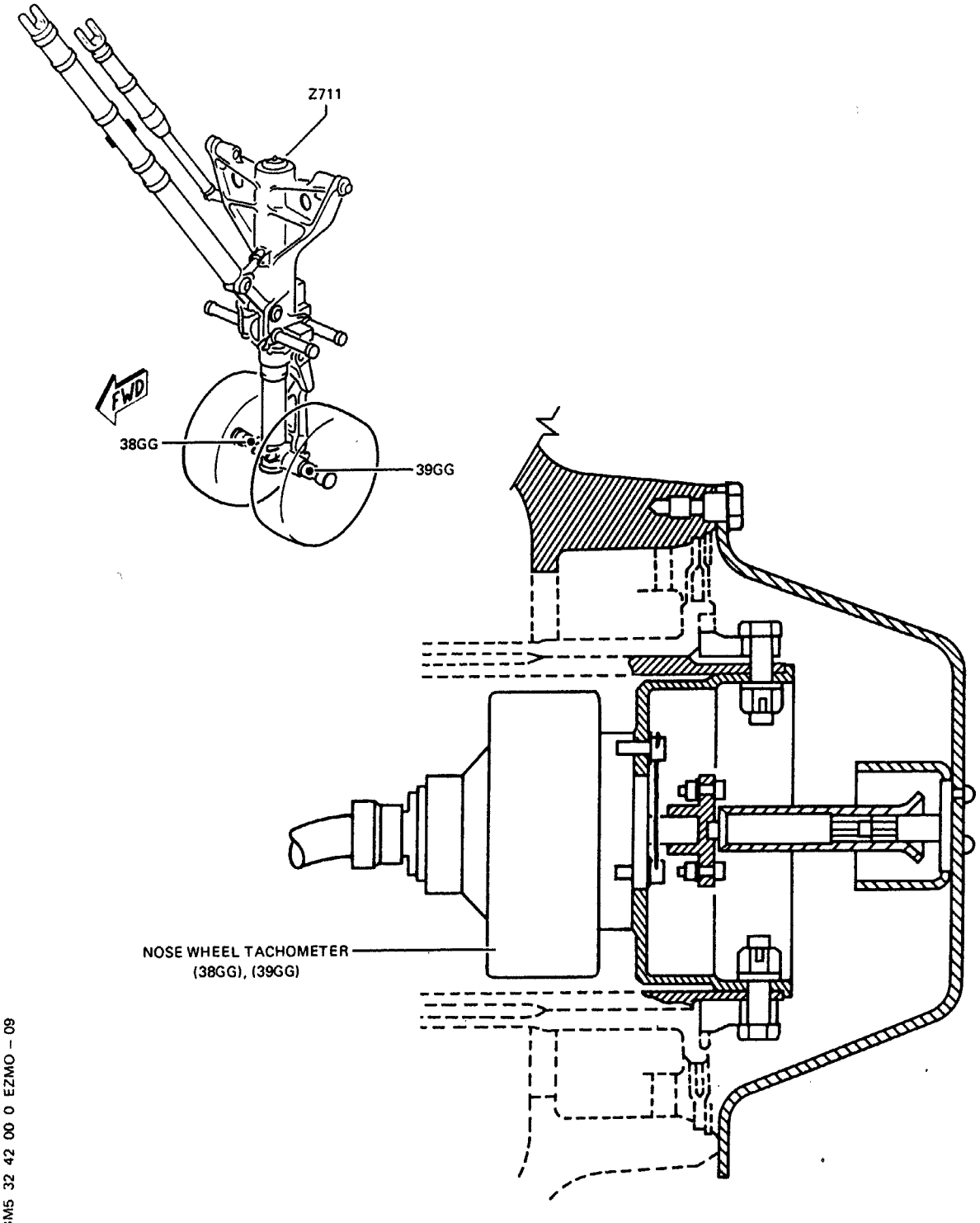
Hydraulic Components - Zones 147/148 (Sheet 1/2)
Figure 004



Hydraulic Components - Zones 147/148 (Sheet 2/2)
Figure 004

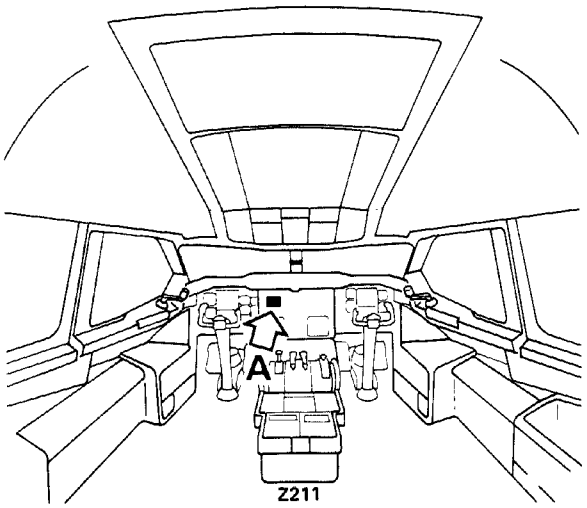


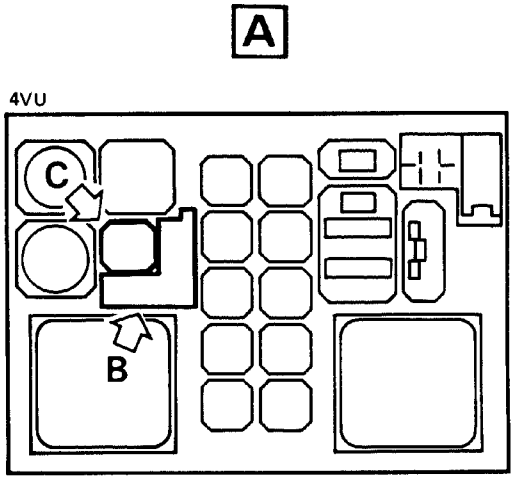
Brake System Components - Zones 731/741
Figure 005



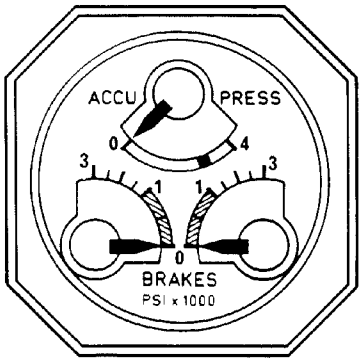
BM5 32 42 00 0 EZMO – 09

Nose Wheel Tachometer - Location
Figure 006

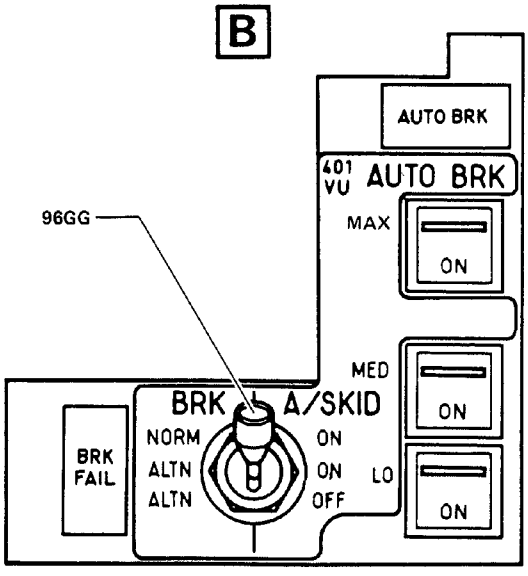




4VU



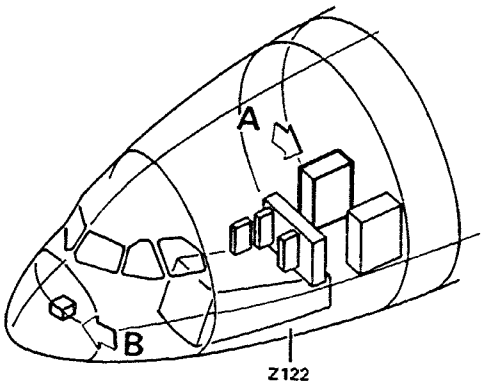
71GG
BRAKE YELLOW PRESSURE
TRIPLE INDICATOR

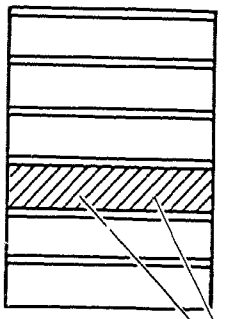


401VU

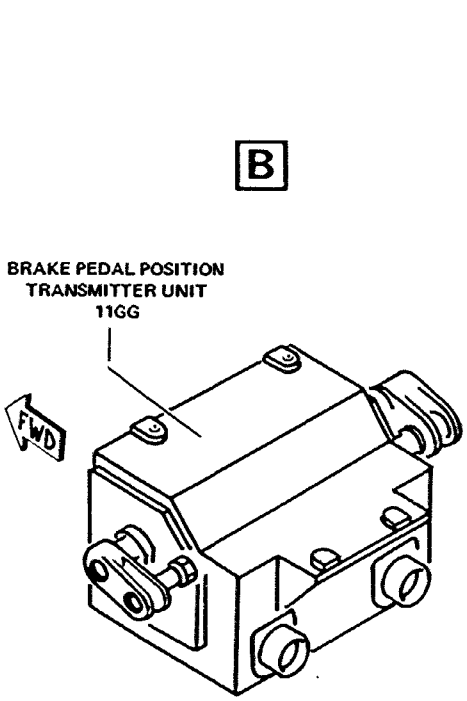
BM5 32 42 00 0 FFM0 – 00

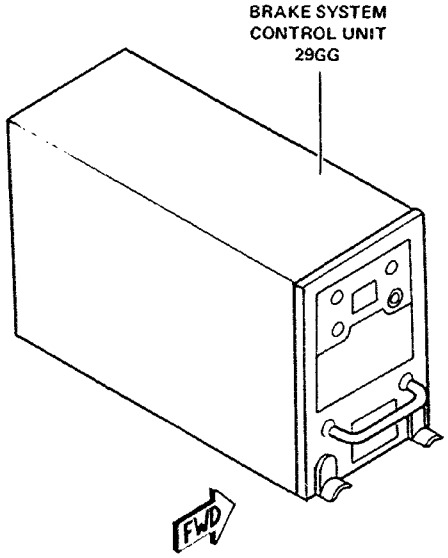
Control and Indicating Components - Flight Compartment
Figure 007





29GG : BRAKE SYSTEM CONTROL UNIT
43GG : BRAKE SYSTEM CONTROL UNIT MOUNT.





BM5 32 42 00 0 EYMO – 12

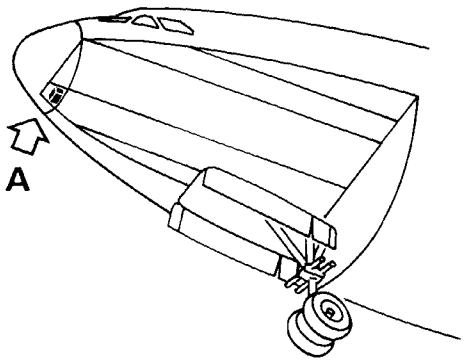
Brake System Control Components - Location
Figure 008

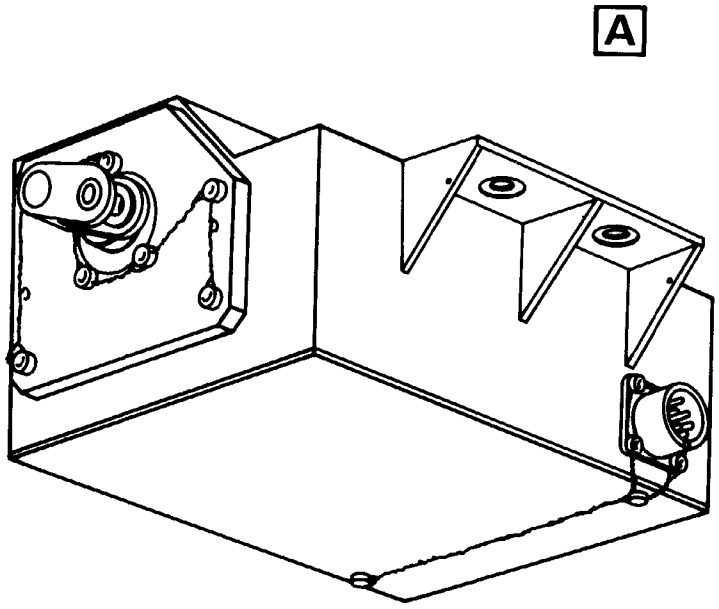
3. Component Description

A. Flight Compartment Controls
Control is electrical and achieved :
- either via the pedals
- or automatically
  . on the ground by the auto brake system
  . in flight, when the landing gear Normal control lever is placed in UP position.

In all cases the system is supplied by energization of a selector valve. Selection of ALTN/ON or ALTN/OFF mode, on the center instrument panel, or application of the Parking brake de-energizes the selector valve and deactivates the Normal mode.
The Captain and First Officer pedal controls are mechanically linked by rods and bellcranks.
The left pedals control one of the pedal position transmitter unit input levers, the right pedals the other.

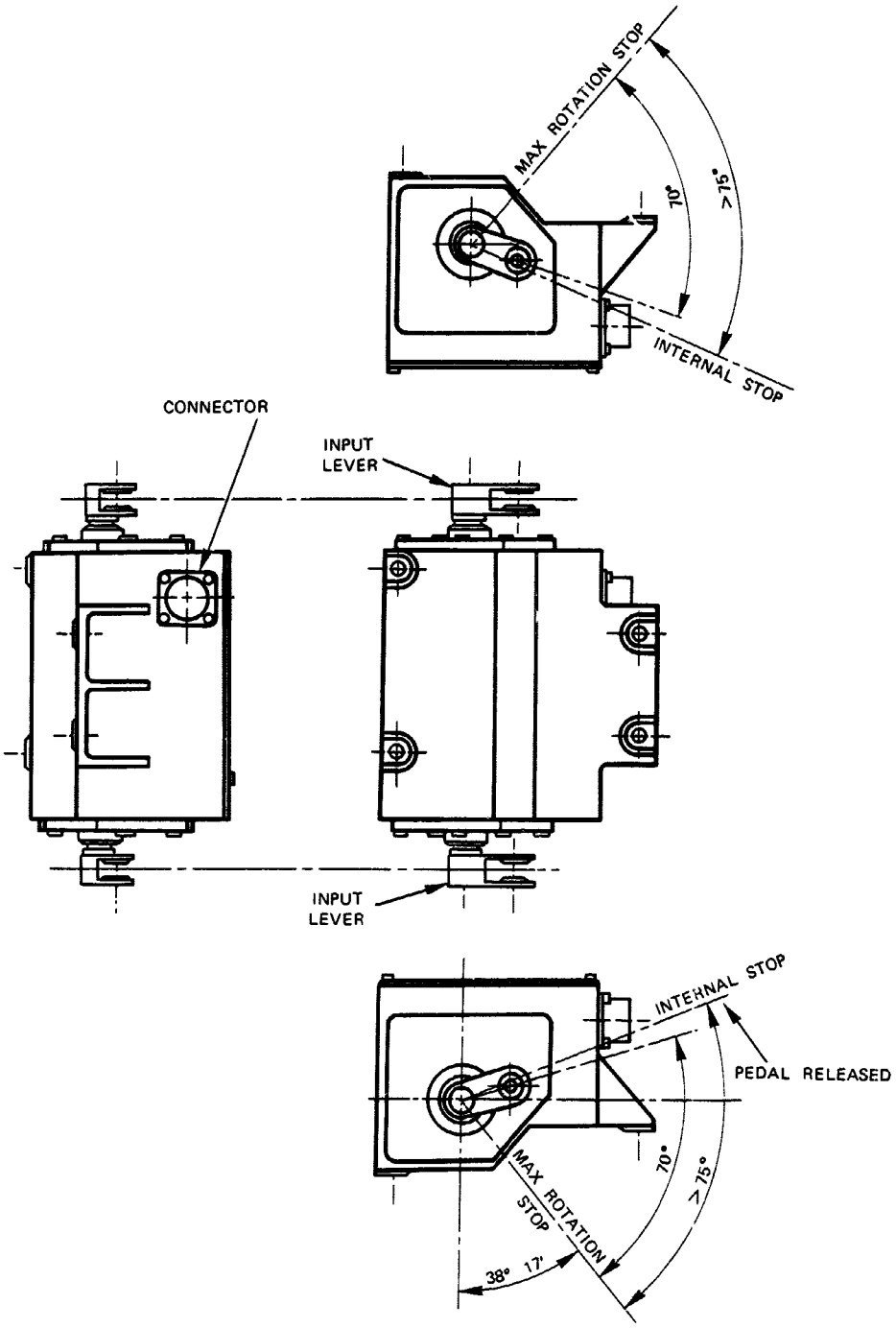
B. Brake Pedal Transmitter Unit (Ref. Fig. 009, 010, 011)
The brake pedal transmitter unit, located underfloor on First Officer's side, transforms the mechanical input from the left and right pedals into four identical electrical voltages per side via plastic track potentiometers. The output signals are sent to the brake system control unit.
The transmitter unit characteristics, i.e. the relationship between pedal angle and the output voltage function of transmitter unit input lever rotation, are given in the chart.
For a given pedal angle the brake control unit delivers a selector valve energization command.
When the pedals are depressed, any overtravel is absorbed by the spring rods which actuate the transmitter unit levers.





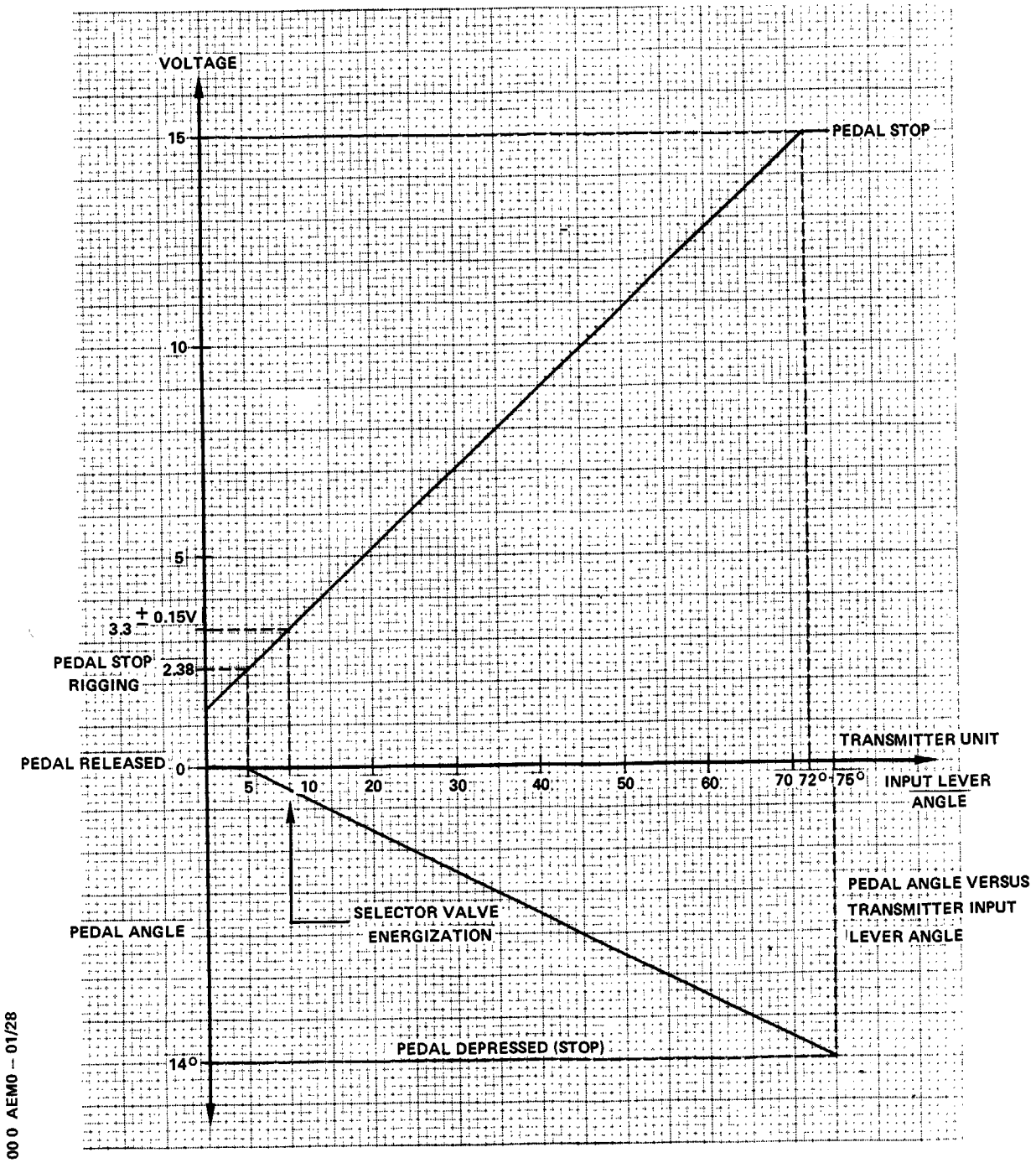
BM5 32 42 00 0 ABMO – 12 – 07
DM5

Brake Pedal Transmitter Unit
Figure 009



BM5 32 42 00 0 ACMO

Brake Pedal Transmitter Unit - Dimensions
Figure 010

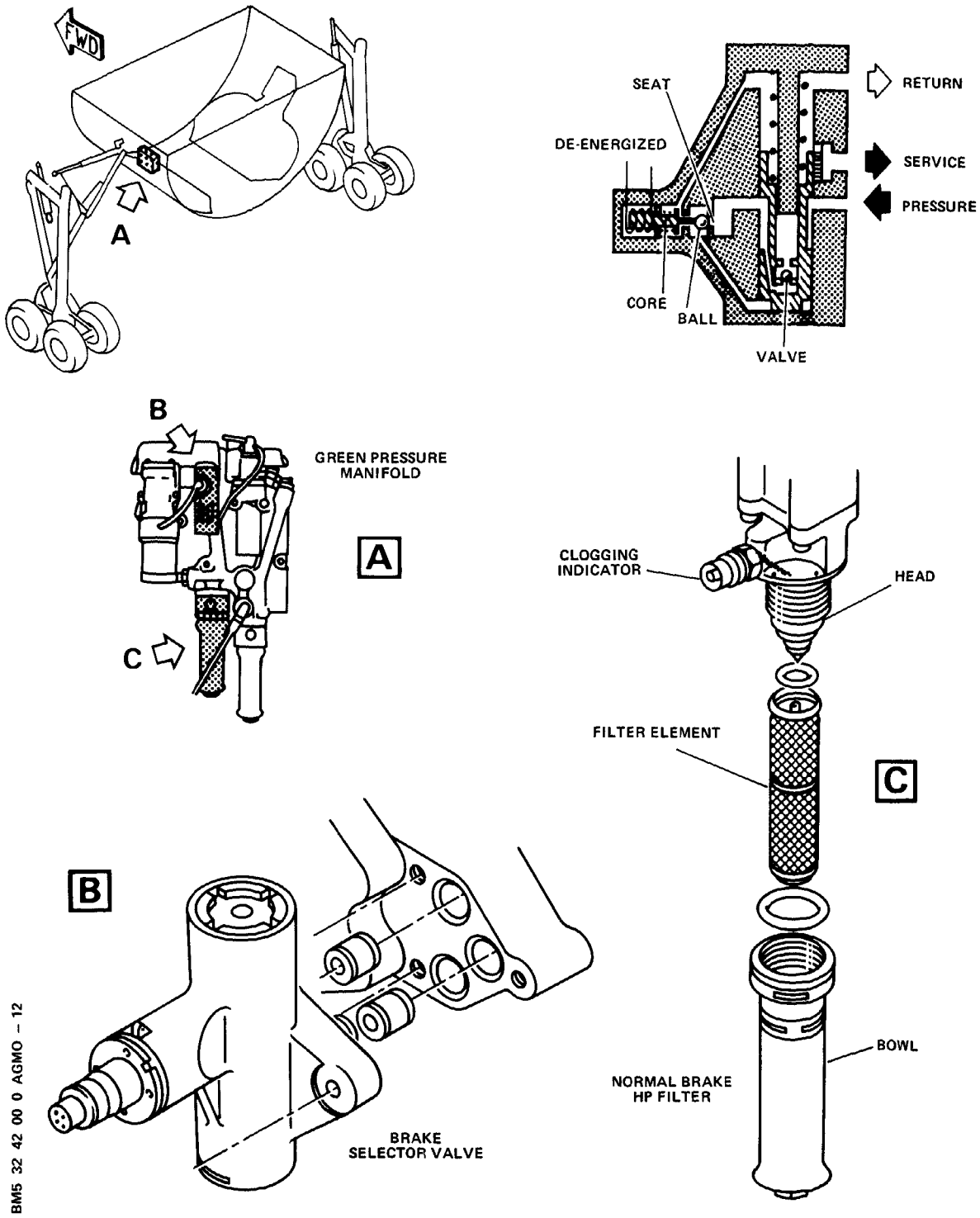


Brake Pedal Transmitter Unit - Characteristics
Figure 011

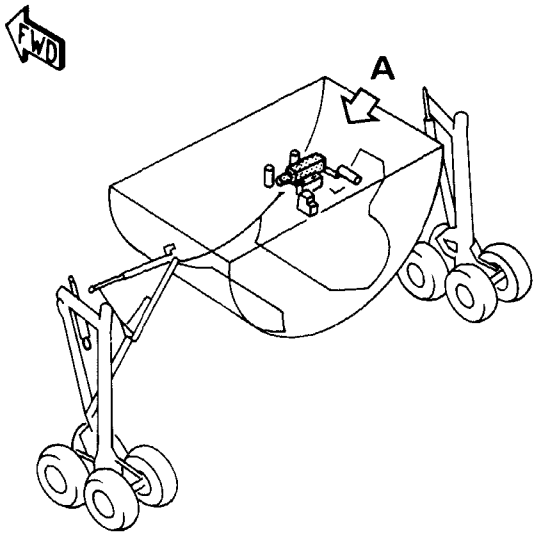
C. Selector Valve and Filter (Ref. Fig. 012)
The selector valve is located in the hydraulics compartment.
The selector valve is of the 3-way type and isolates the Normal braking system when the solenoid is de-energized ; Normal braking not selected or pedals released.
An internal valve ensures progressive opening of the selector valve supply-to-delivery passage.
A filter with filtering capacity of 15 microns absolute is installed on the delivery port. The purpose of the filter is to protect the supply to the servovalves downstream of the selector valve.

D. Automatic Selector and Throttle Valve
(Ref. Fig. 013)
The brake automatic selector is located in the hydraulics compartment.
The main function of the automatic selector is to automatically supply during braking the Normal or Alternate braking systems depending on the hydraulic system available.
The automatic selector is designed to ensure segregation of the two systems and preferential supply of the Normal system.
When the pedals are released, the automatic selector slide valve is positioned by the Yellow system and Yellow pressure is available for Alternate brake (D to E).
(Ref. Fig. 014)
When the brake selector valve delivers Green pressure to A, the automatic selector connects the Alternate system to Yellow resrvoir return (I to H) and Green pressure to the Normal system (A to B) as soon as P $\geq$ 150 $\pm$6 bars (2175 $\pm$ 87 psi).
(Ref. Fig. 015)
Inverse operation is achieved when Green pressure drops below 90 bars.
A throttle valve installed on the automatic selector Green supply port (A) slows down movement of the selector main slide valve when the brake selector valve is de-energized.
(Ref. Fig. 015)

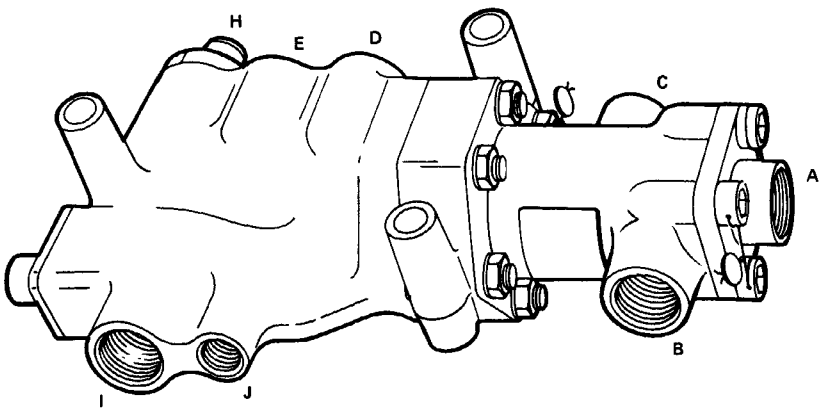
E. Master Valves (Ref. Fig. 016)
Two master valves, one per main gear, are installed in the hydraulics compartment.
The master valves include a metallic core with integral flapper moving between two jets. Two coils are installed around the core which is mounted in the gap of a permanent magnet.
The attraction of the core by the poles of the magnet is function of the current passing through the coils.
Movement of the flapper modifies the sections of the fluid passage at the jets and consequently the pressure in the slide valve control chambers. The differential action of the pressure in the control chambers displaces the slide valve until the pressure is balanced by the action of the slide valve positioning springs.
The flow delivered by the master valve is determined by the section of the slide valve passage. The section is inversely proportional to the current passing through the control coils.
(Ref. Fig. 017)



Selector Valve and Filter
Figure 012



A



BM5 32 42 00 0 AJMO – 12

Automatic Selector
Figure 013

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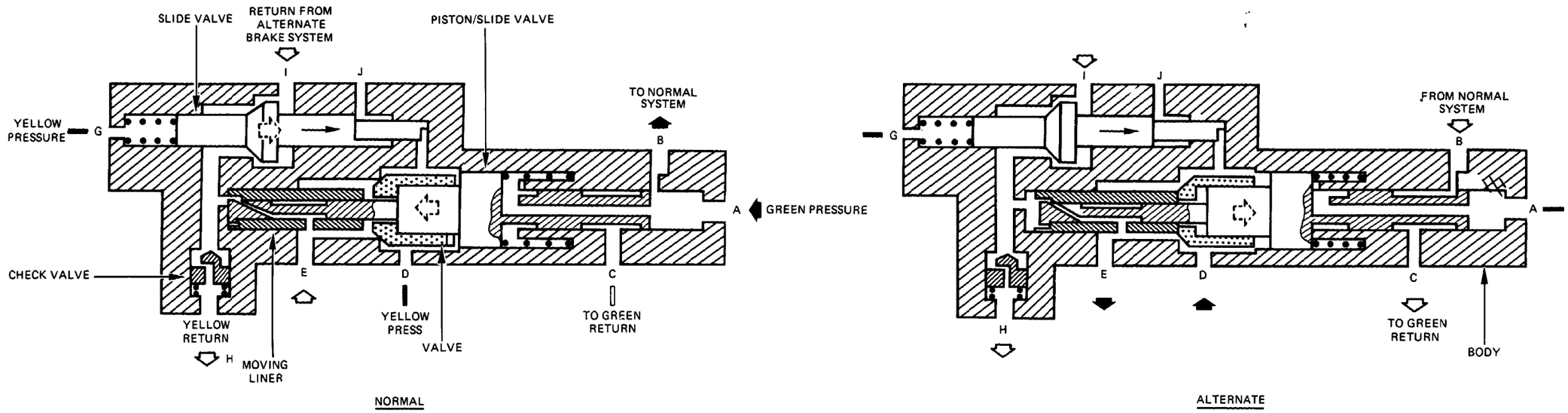
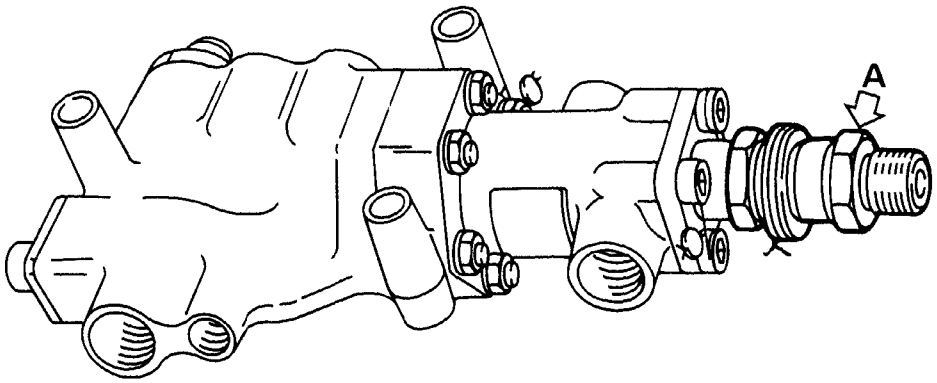
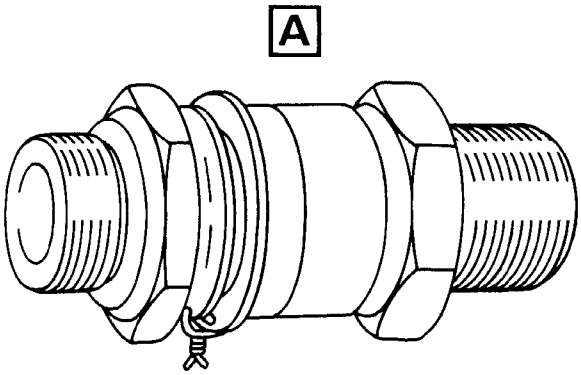
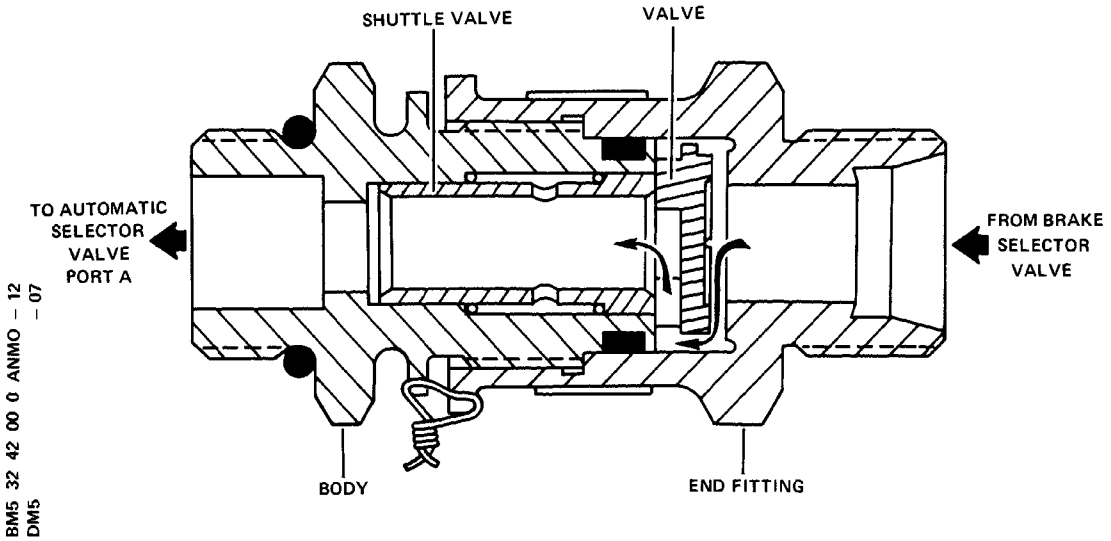


BM5 32 42 00 0 ALMO - 09 - 04
DM5

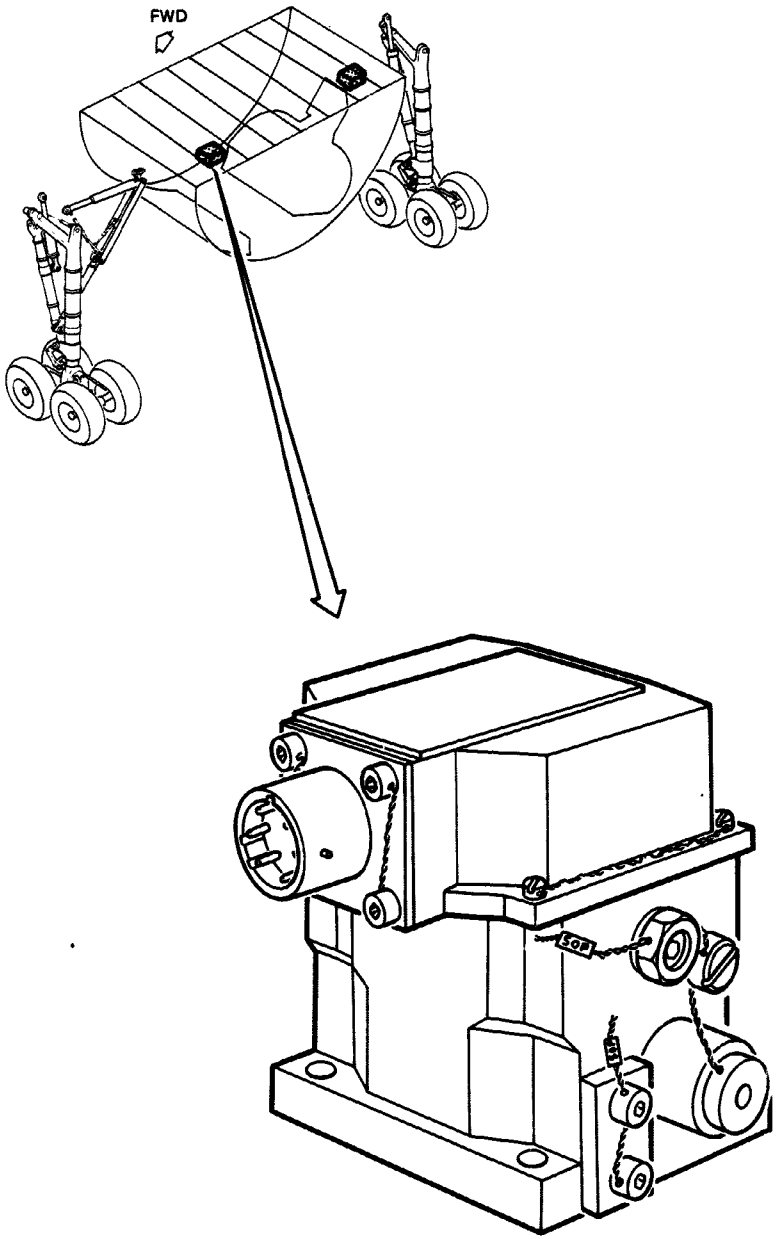
Automatic Selector - Schematic
Figure 014







Throttle Valve
Figure 015



Master Valves - Location
Figure 016

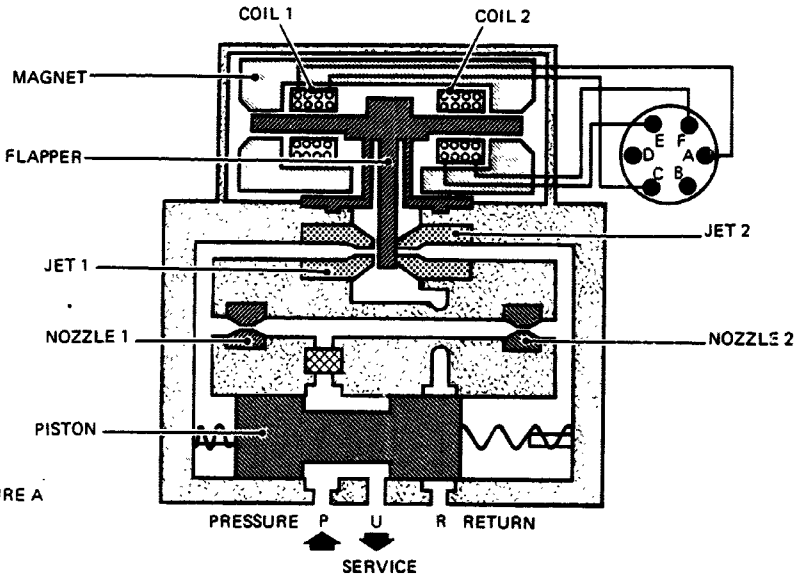
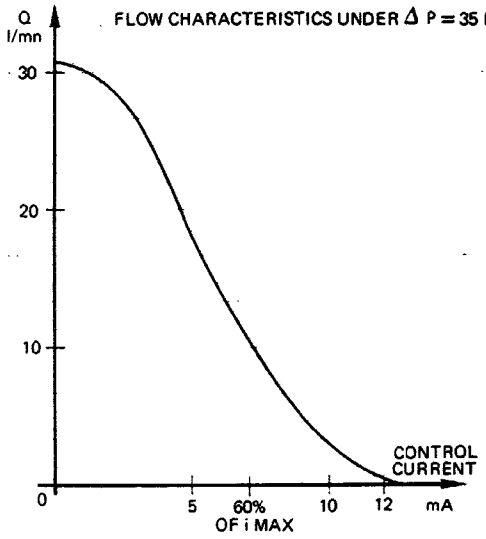


FIGURE A



MAIN CHARACTERISTICS

P	206 BARS
LEAKAGE AT 0mA	0.6 l/mn
HYSTERESIS	0.2 mA
RESISTANCE 1 COIL	100 Ω

TRANSFER FUNCTION

$$H_o = \frac{G_o}{(1+2Z)(1+\frac{2z\,S}{\omega\,no}+\frac{S^2}{\omega^2\,no})}$$

G_o : GAIN $M^3/S/mA$

S = LAPLACE VARIABLE

$z = 10^{-3}$ SEC

$z_o = 0.8$

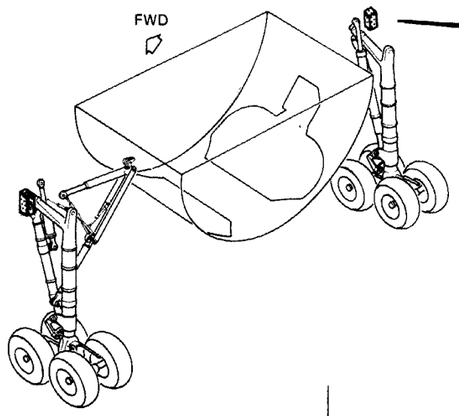
$\omega_{no} = 314$ RD/SEC

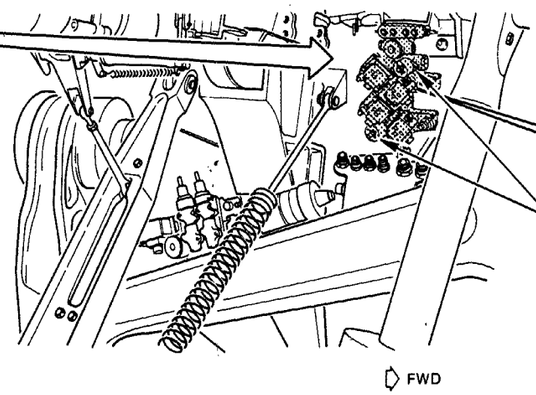
BM5 32 42 00 0 ARMO

Master Valve - Characteristics
Figure 017

At the zero current, the slide valve provides maximum flow from supply to delivery. This flow is high to achieve filling of the brakes in a satisfactory time.
At low flow rates, reduction in gain is necessary to maintain the stability of the slave control.
In the absence of supply pressure, the slide valve connects the supply port directly to the delivery port.
The first stage of each master valve is protected by an internal filter with filtering capacity of 15 microns absolute.
Clogging of this filter causes the slide valve to open the delivery port.
Each master valve is mounted on a manifold the supply port of which is equipped with a protective filter with filtering capacity of 15 microns absolute.

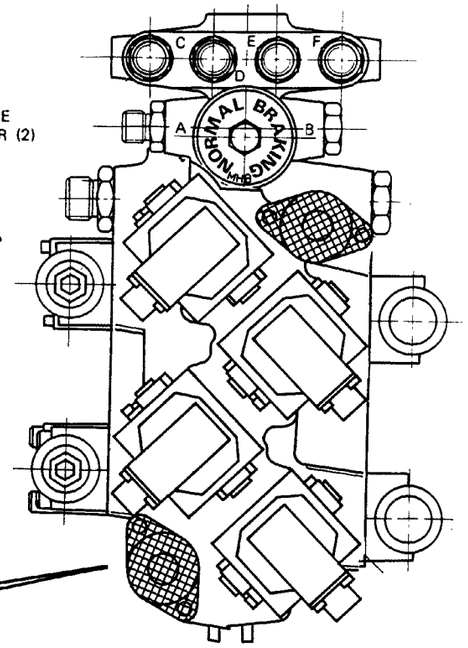
F. Normal Brake Pressure Transducers
(Ref. Fig. 018)
The brake pressure transducers are installed in the line connecting the master valve to the brake servovalves (two per line) and serve for master valve pressure slaving.
The integrated logic transducer delivers a DC voltage of between 1 and 5 volts for a pressure varying between 0 and 200 bars.
The zero has been shifted to enable BITE testing.

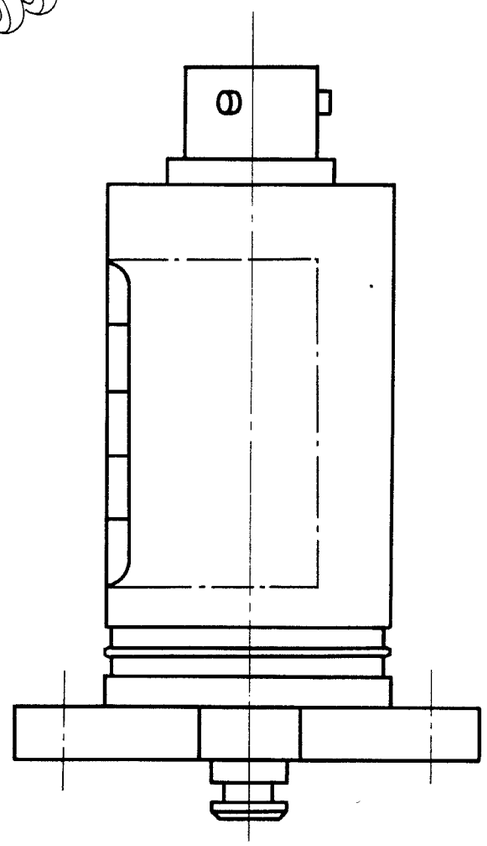


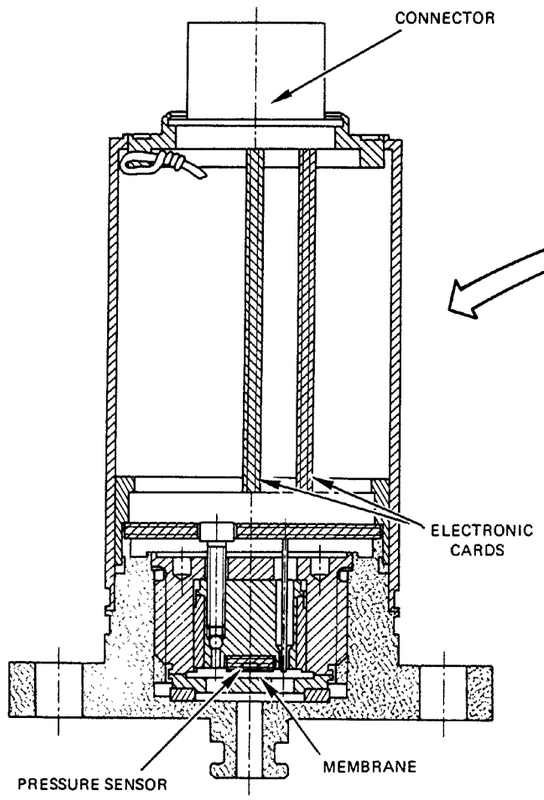


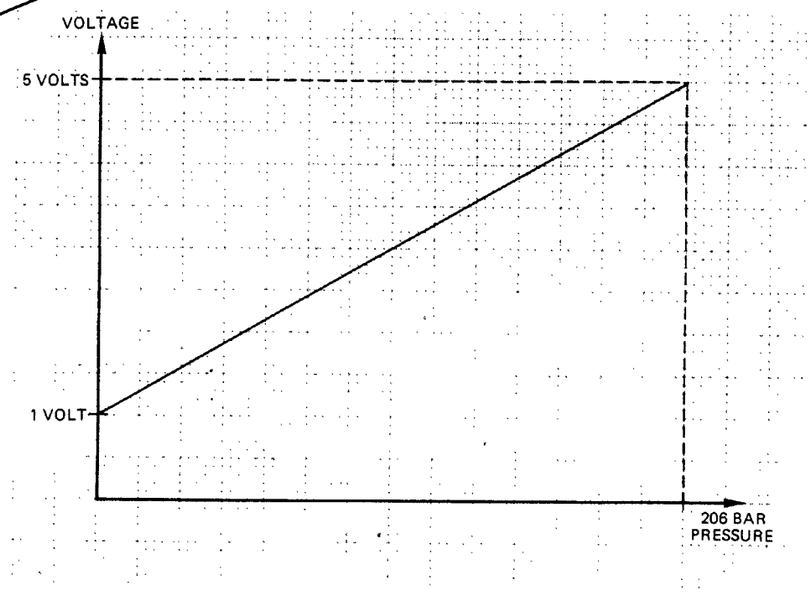
NORMAL SYSTEM
BRAKE PRESS
TRANSDUCER

PRESSURE
TRANSMITTER (2)









BM5 32 42 00 0 ATMO

Pressure Transducer
Figure 018

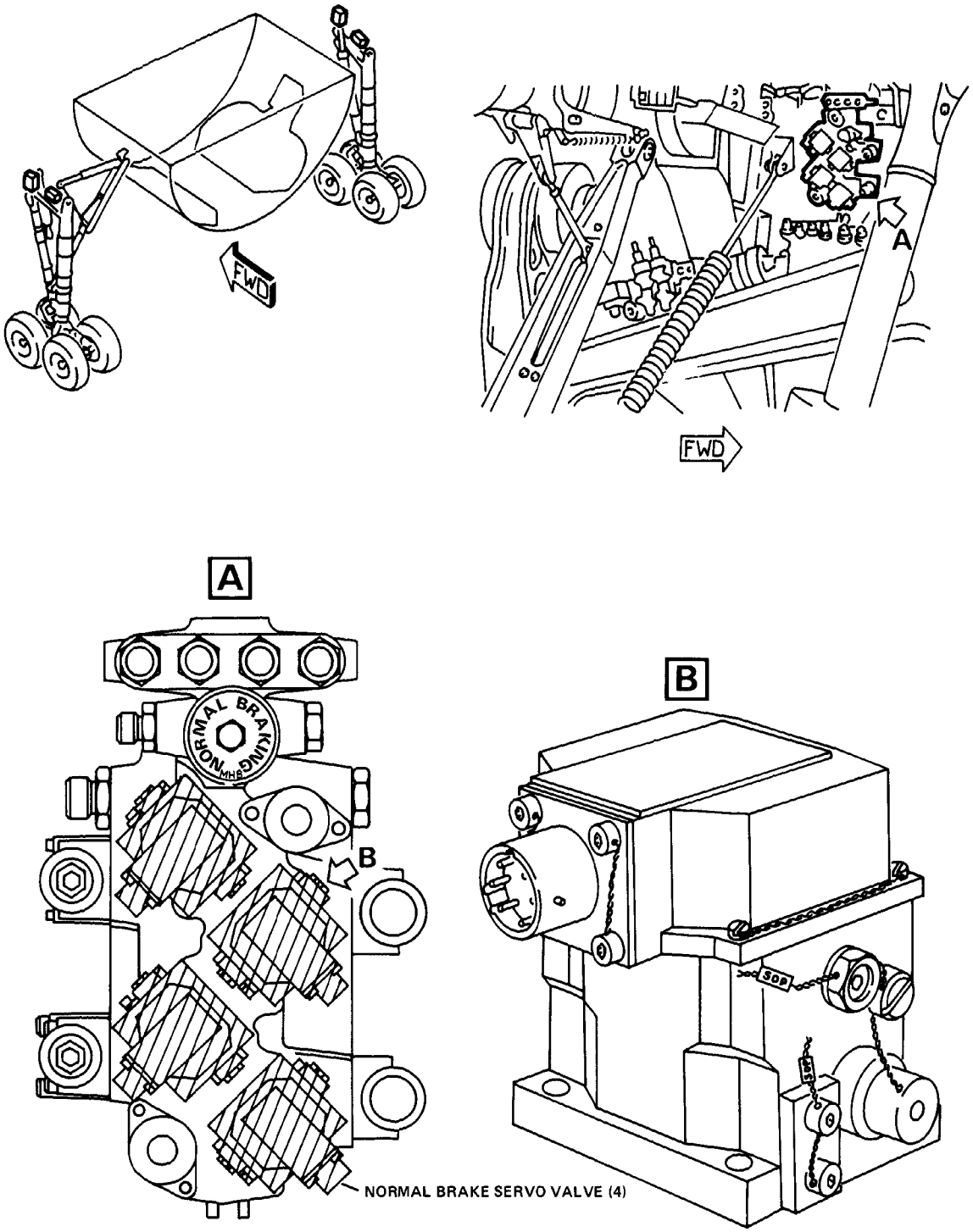
G. Normal Brake Servovalves

There are eight servovalves, one per brake.
(Ref. Fig. 019)
(Ref. Fig. 020)
A manifold is installed in each main gear well, above the hinge arm (Ref. 32-11) and is equipped with the following :
- four brake servovalves
- four associated safety valves, with integrated downstream filter
- two pressure transducers
- one filter on the manifold supply.

(Ref. Fig. 021, 022)
The brake servovalve delivers a pressure inversely proportional to the current passing through the control coil used. The influence of the supply pressure on the pressure/current gain is negligible (unigain type servovalve).
The current causes the displacement of a flapper located between two jets. (The design of the control stage is identical to that of the master valve). The resulting difference in pressure displaces a slide valve enabling the brake to be filled or drained depending on whether the current decreases or increases.
The slide valve adopts a balanced position under the action of the pressure delivered on one of the opposing faces of the slide valve. With zero current in the coil the pressure delivered is equal to the pressure supplied to the servovalve.
In the absence of supply pressure, the servovalve connects the brake to the reservoir return system.

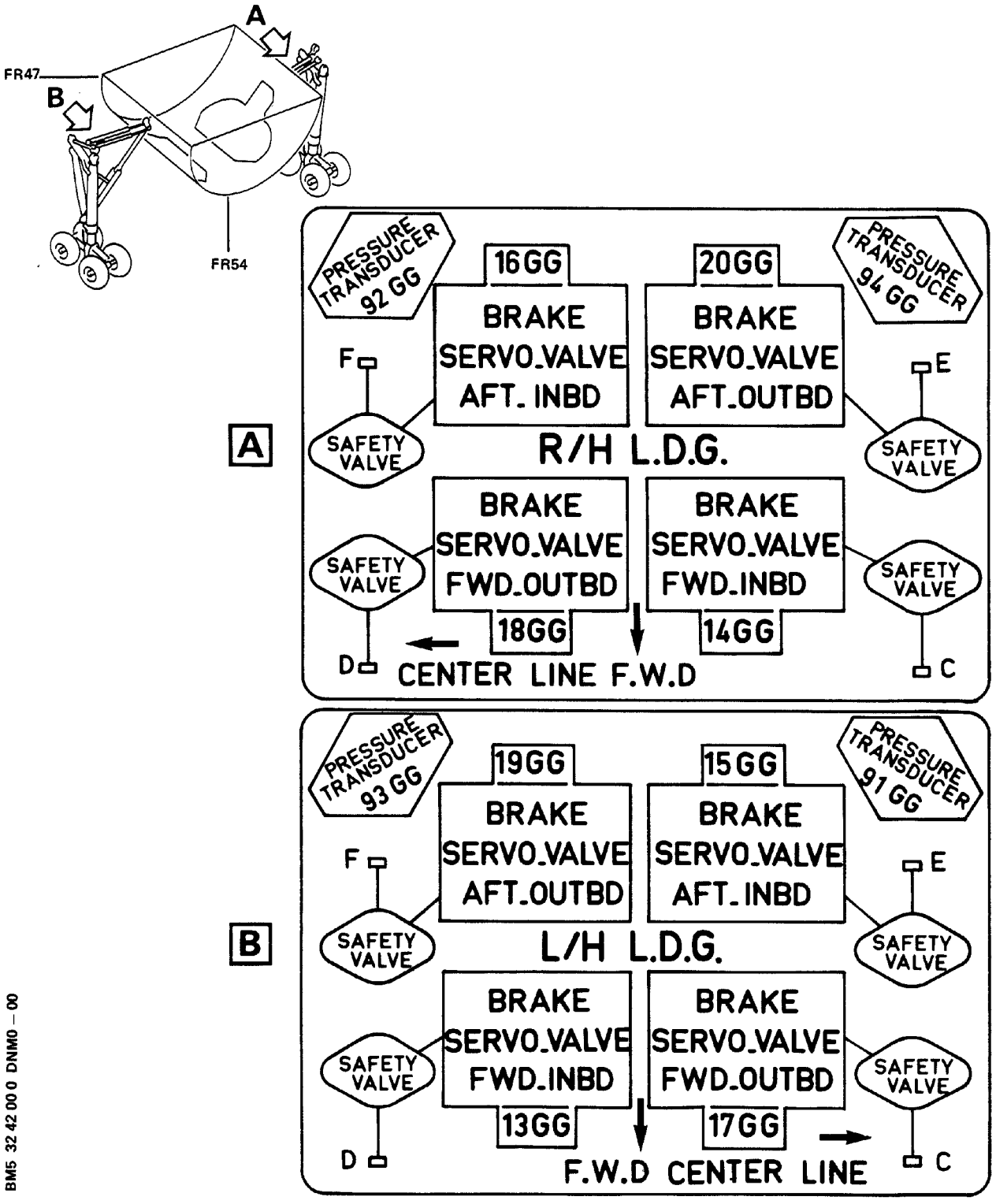
H. Safety Valves (Ref. Fig. 023)

A safety valve is installed between the brake servovalve and the brake and shuts off the line in the event of leakage.
The safety valve is designed to operate only if the flow is $\geq$ 11 l/minute. The time required for valve closure is less than 5 seconds (with fluid temperature = 30°C) for a flow rate $\geq$ 25 l/minute under a supply pressure of 206 bars (2987 psi).
With no leakage downstream the valve is as shown in the figure.
(Ref. Fig. 024)
Under the above conditions, resulting in operation of the valve the supply pressure acts on the slide valve in chamber A causing the valve to close. Filling of chamber A provides a time delay, preventing untimely operation as a result of the transient high flow rates encountered during filling of the brakes or anti skid regulation.
To prevent untimely operation of the valve during bleeding of the brakes the bleeders are calibrated for a maximum flow < 11 l/minute. The valve remains closed after operation for a supply pressure greater than or equal to that of the reservoir.
The valve is reconditioned by depressurizing the reservoir return system, or by opening the bleed screw equipping one end of the valve.



BM5 32 42 00 0 AVMO – 12

Normal Brake Servovalves - Location
Figure 019



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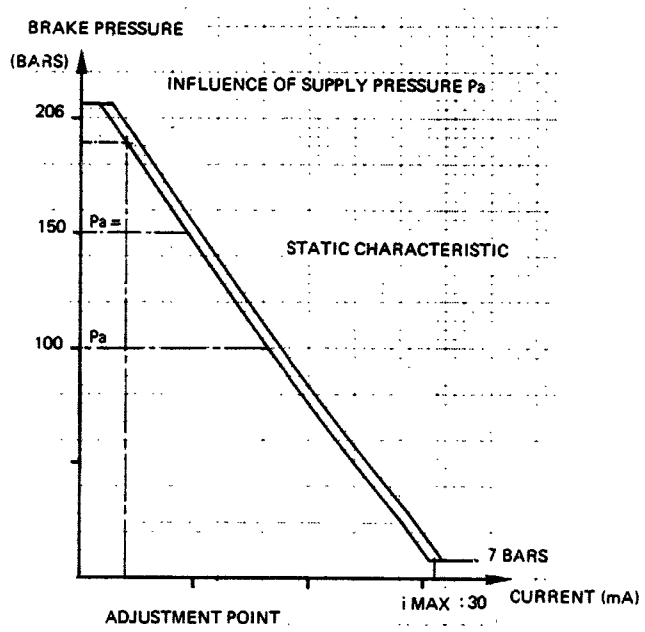
Normal Servovalves Identification Plates
Figure 020



TRANSFER FUNCTION OF SERVOVALVE ASSOCIATEDWITH BRAKE

$$\frac{P}{i} = \frac{K}{1 + 2z\frac{s}{\omega n} + \frac{s2}{\omega^2 n}}$$

P = DELIVERY PRESSURE
i = INPUT CURRENT
K = STATIC GAIN
z = DAMPING RATIO
ωn = NATURAL FREQUENCY
s = LAPLACE VARIABLE

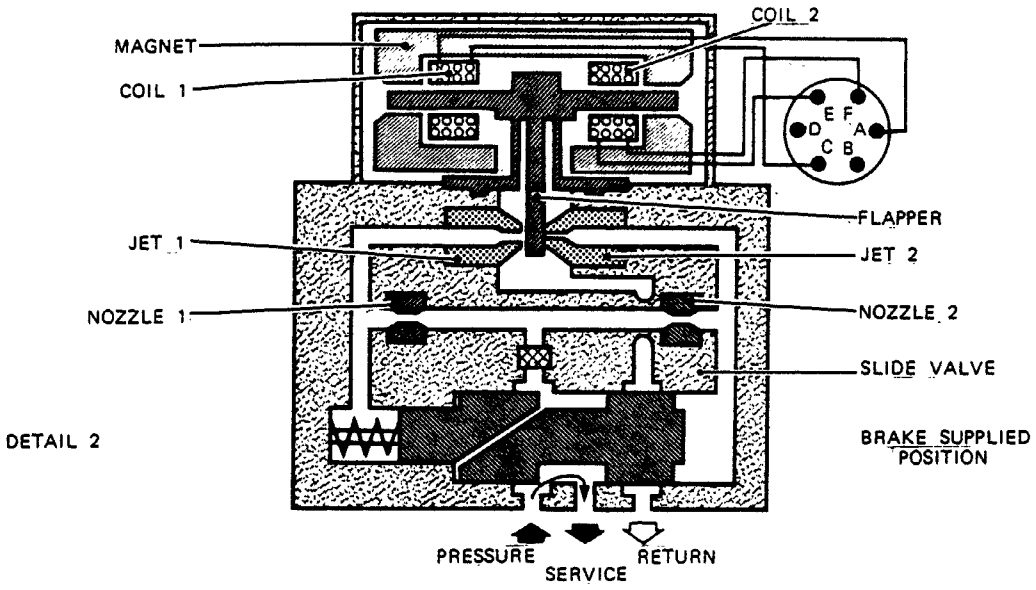
MAIN CHARACTERISTICS

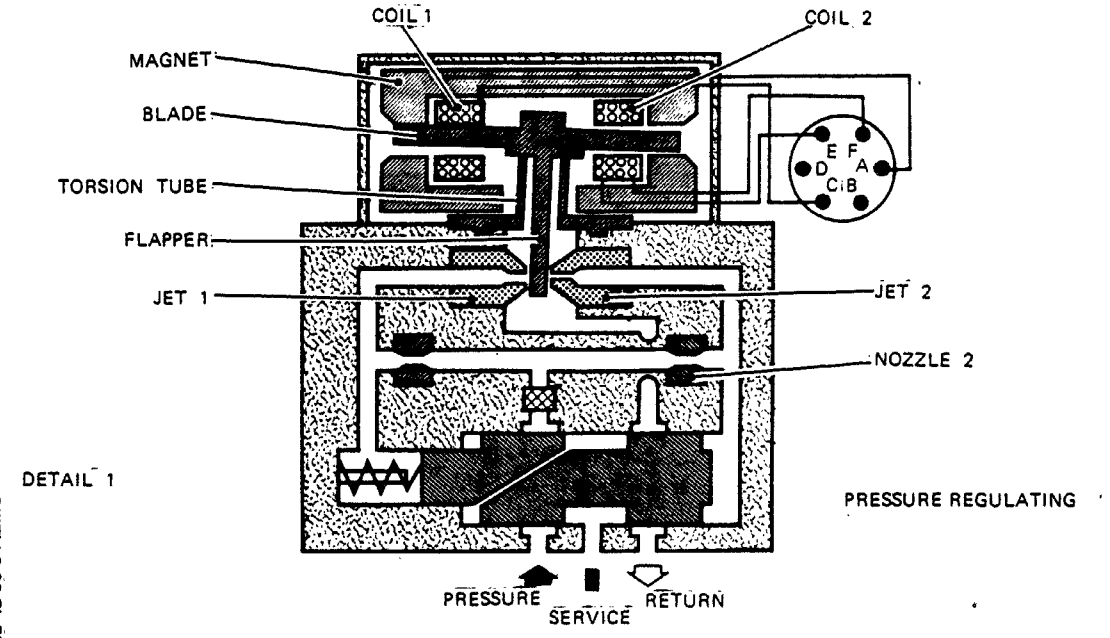
P	0 TO 206 BARS *
LEAKAGE UNDER 0 mA	< 0.8 l/mn
HYSTERESIS	≤6 BARS
RESISTANCE OF 1 COIL	100 Ω

* IN NORMAL MODE

BM5 32 42 00 0 AXMO

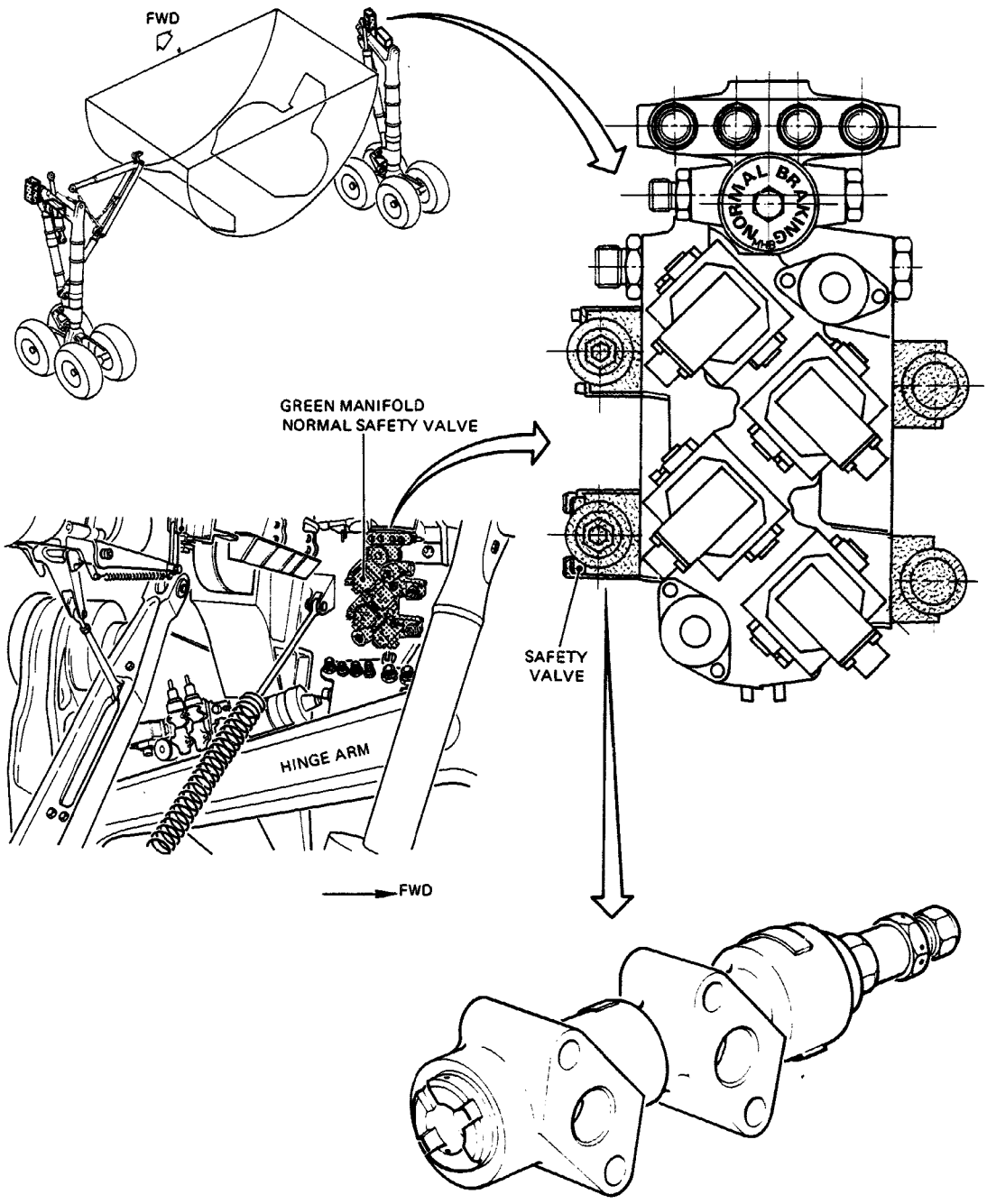
Brake Servovalve - Characteristics
Figure 021





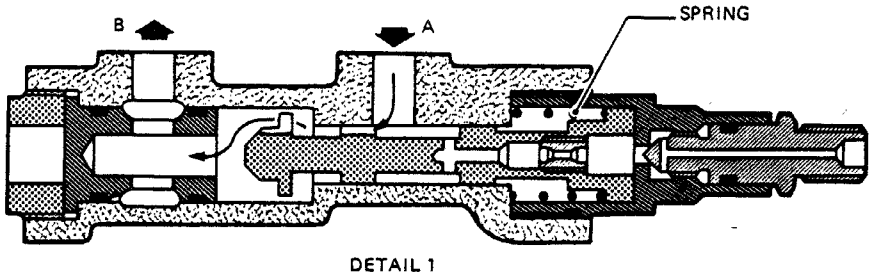
BM5 32 42 00 0 AZMO
DM5

Brake Servovalve - Schematic
Figure 022

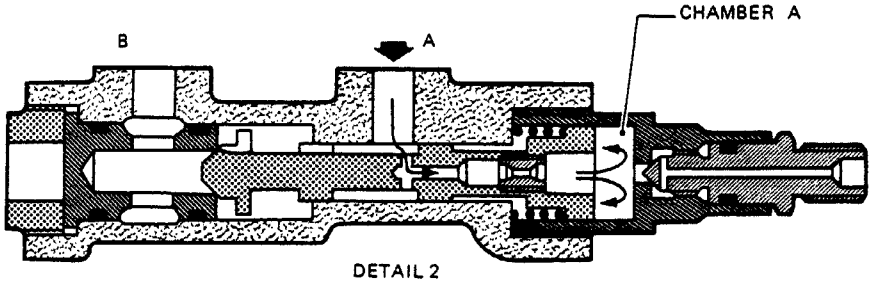


BM5 32 42 00 0 BAMO

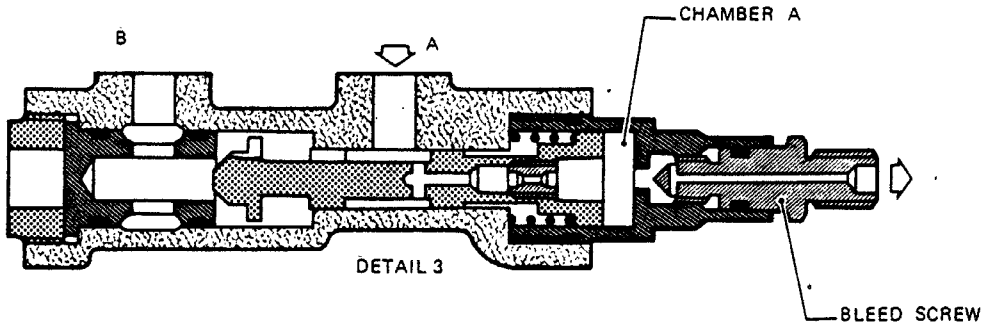
Normal Safety Valves - Location
Figure 023



DETAIL 1



DETAIL 2



DETAIL 3

BM5 32 42 00 0 BCMO
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Safety Valve - Schematic
Figure 024

J. Brake Return Accumulators
(Ref. Fig. 025)
A brake return accumulator (one per side) is installed in the return line near the brake servovalve manifold and serves to speed up draining of the brakes, by absorbing part of the fluid expelled in the return system, and to attenuate the increases in pressure.
The accumulator is comprised of a piston positioned by two springs.

K. Brakes
The brakes are of the disc type. Each brake includes :
- a piston housing
- a torque tube
- a heat pack.

(1)Carbon brake (Messier) (Ref. Fig. 026, 027)

(a)Piston housing (Messier) (Ref. Fig. 028)
The piston housing is a forged aluminum alloy part which combines the functions of taking up brake torque (integral torque axle) and transforming hydraulic pressure into load by means of the pistons.
The piston housing is equipped with :
- the torque axle
- the torque tube
- two hydraulically independent sets of pistons
- a bleeder for each of the two systems
- a self-sealing coupling per system
- two heat pack wear indicators
- a brake temperature sensor.

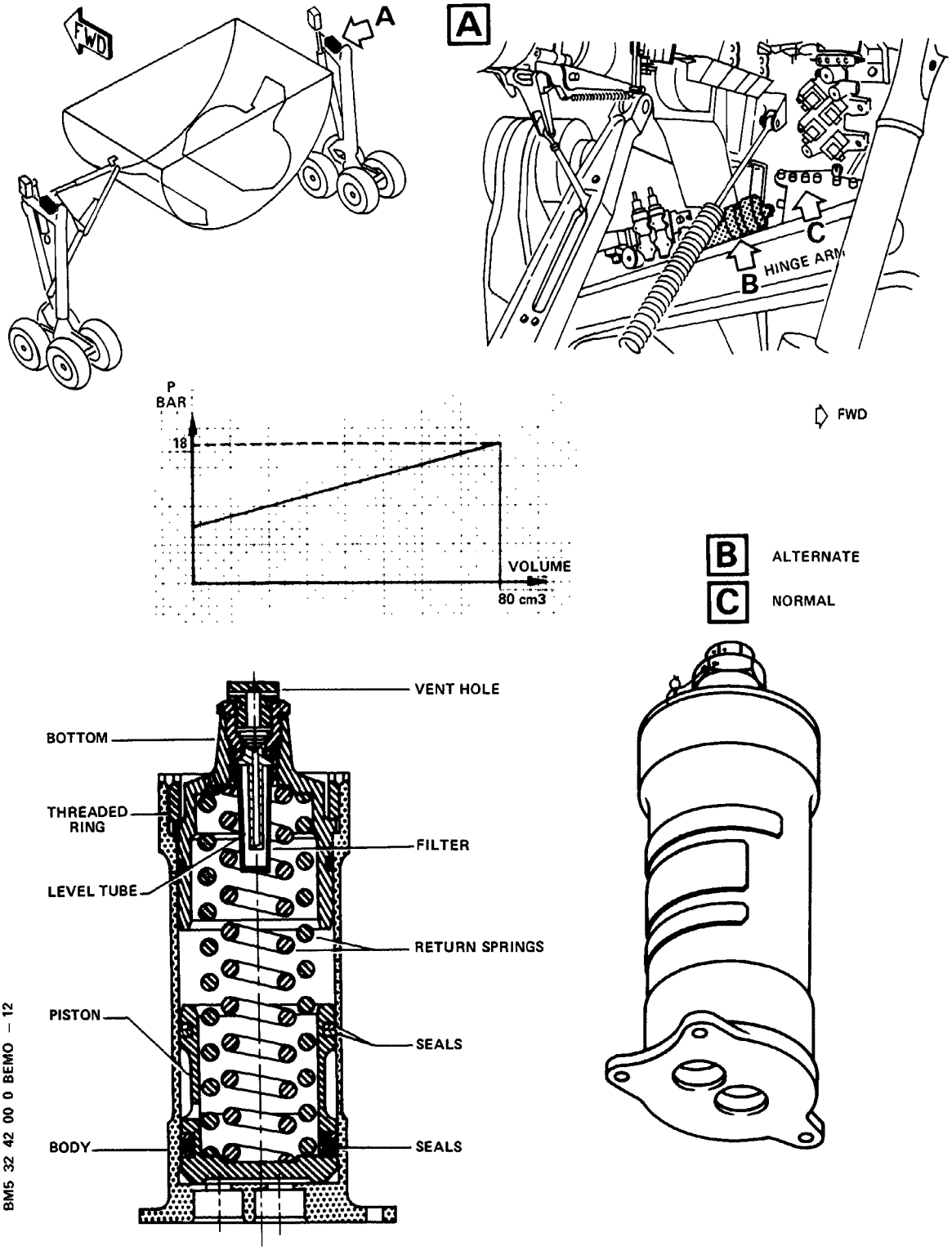
The brake is supplied with hydraulic pressure through two 1/4'' flexible hoses.

1 Self-sealing couplings
The self-sealing couplings are manufactured by Messier and consist of two half couplings screwed together ; one mounted on the piston housing the other on the 1/4'' supply hose. The couplings seal off the brakes and supply lines during removal and thus obviate the need to bleed the brakes.

2 Pistons (Ref. Fig. 029)
There are seven pistons per system ; seven normal and seven alternate. The adjuster/retractor mechanism is an integral part of the piston and is comprised of a return spring and a spiral friction spring.
A piston stop is machined as an integral part of the piston sleeve.
Piston insulators are fixed on the pressure plate. The pistons act on a pressure plate which distributes the braking load evenly to the brake discs.

(b)Torque tube (Ref. Fig. 030)
The torque tube is a forged steel part with splines preventing rotation of the heat park stators. The back plate is bolted on the torque tube.
A dual layer heat shield on the inside of the torque tube prevents over heating of the axle. The torque tube is attached to the piston housing by fourteen steel tie bolts.

(c)Heat pack (Ref. Fig. 031)
The heat pack is comprised of solid carbon rotors and stators.
The stators guided by the torque tube have ten slots reinforced with



Return Accumulator
Figure 025

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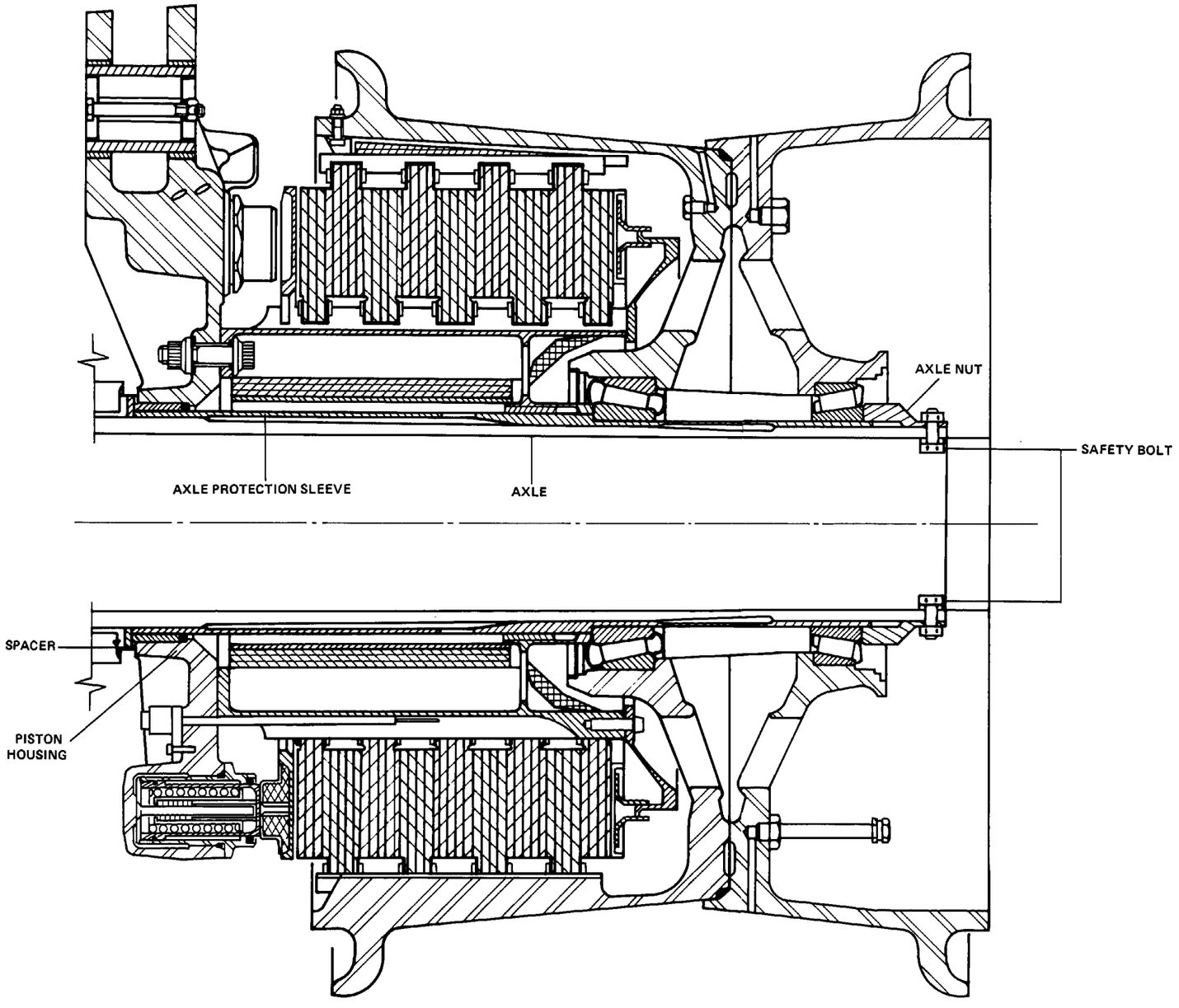
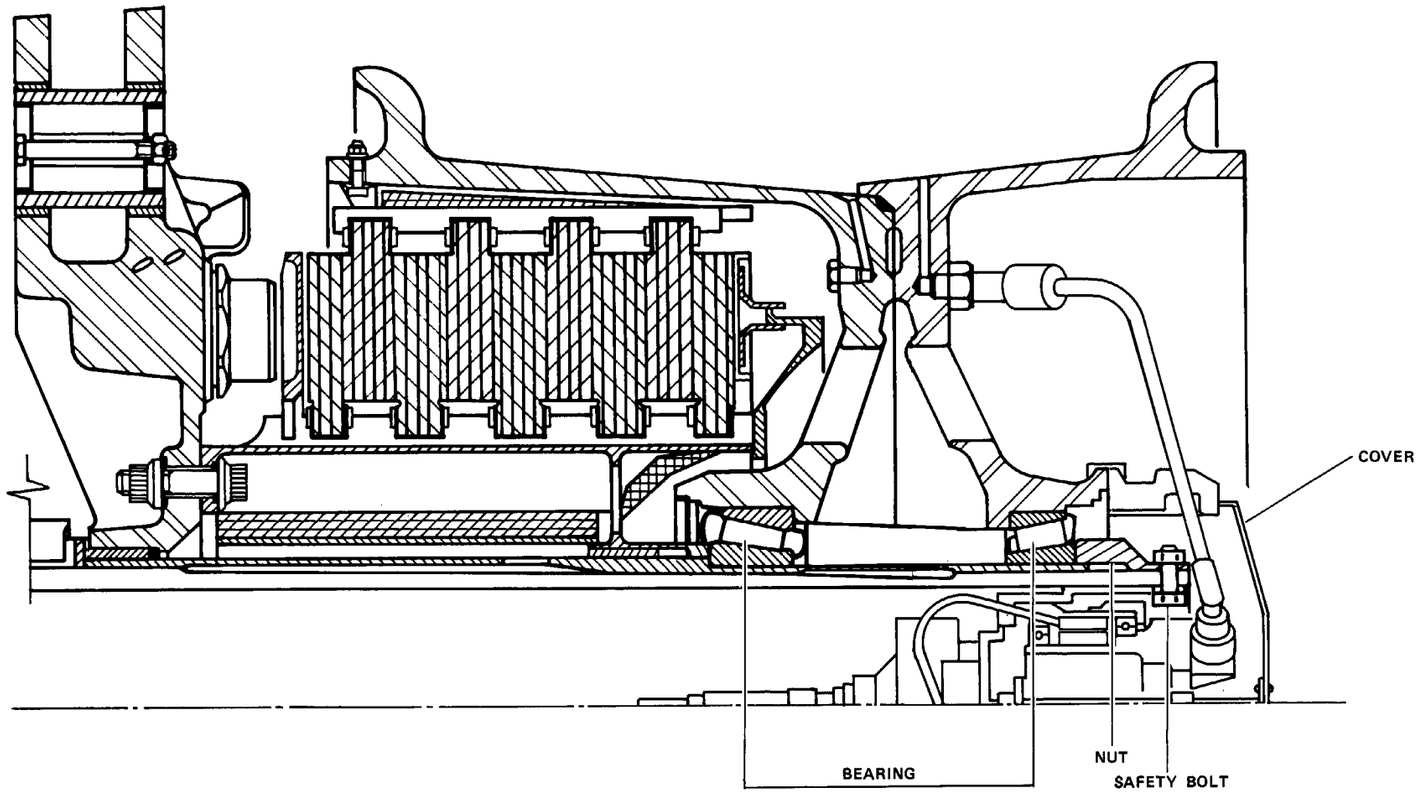
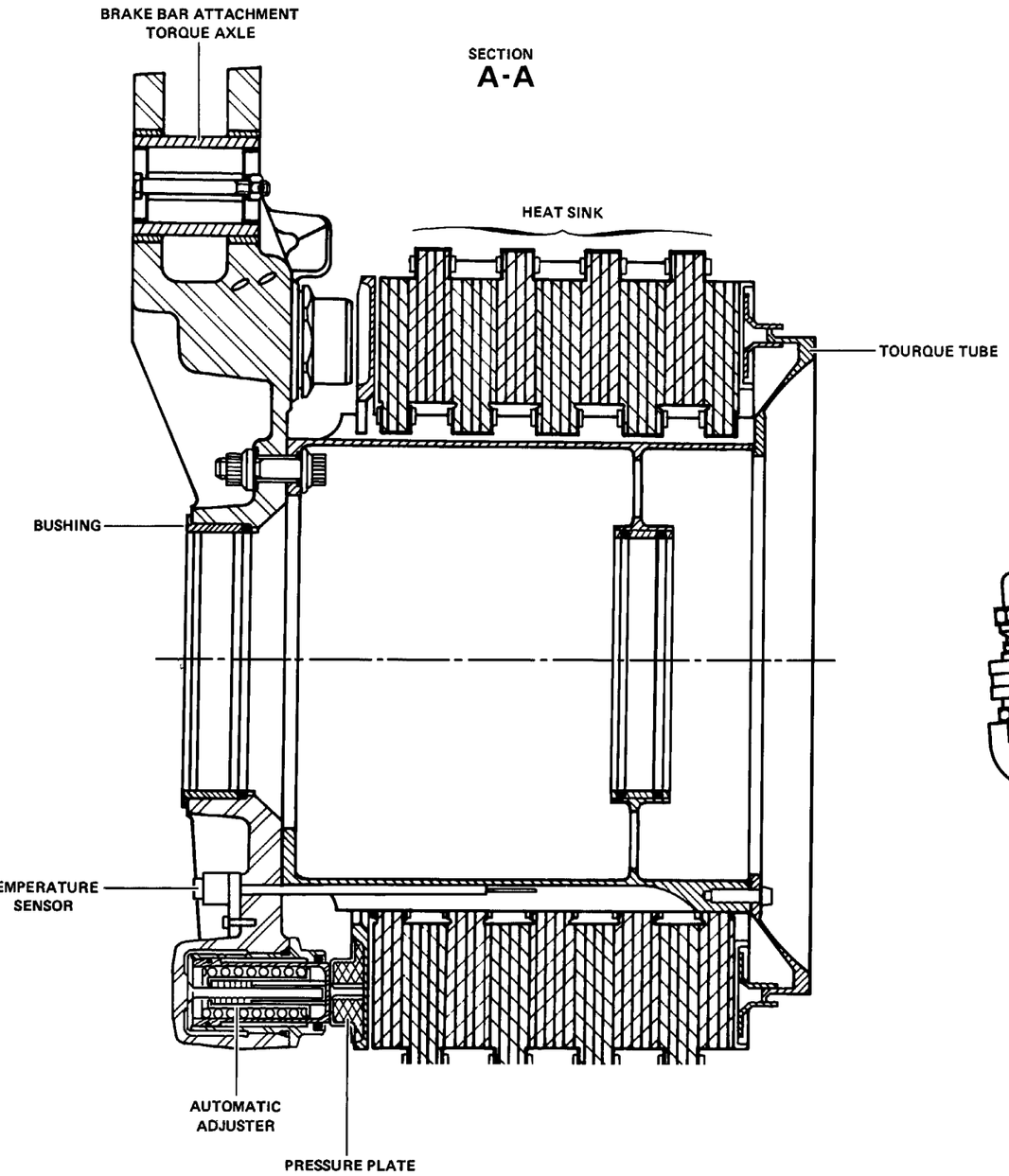
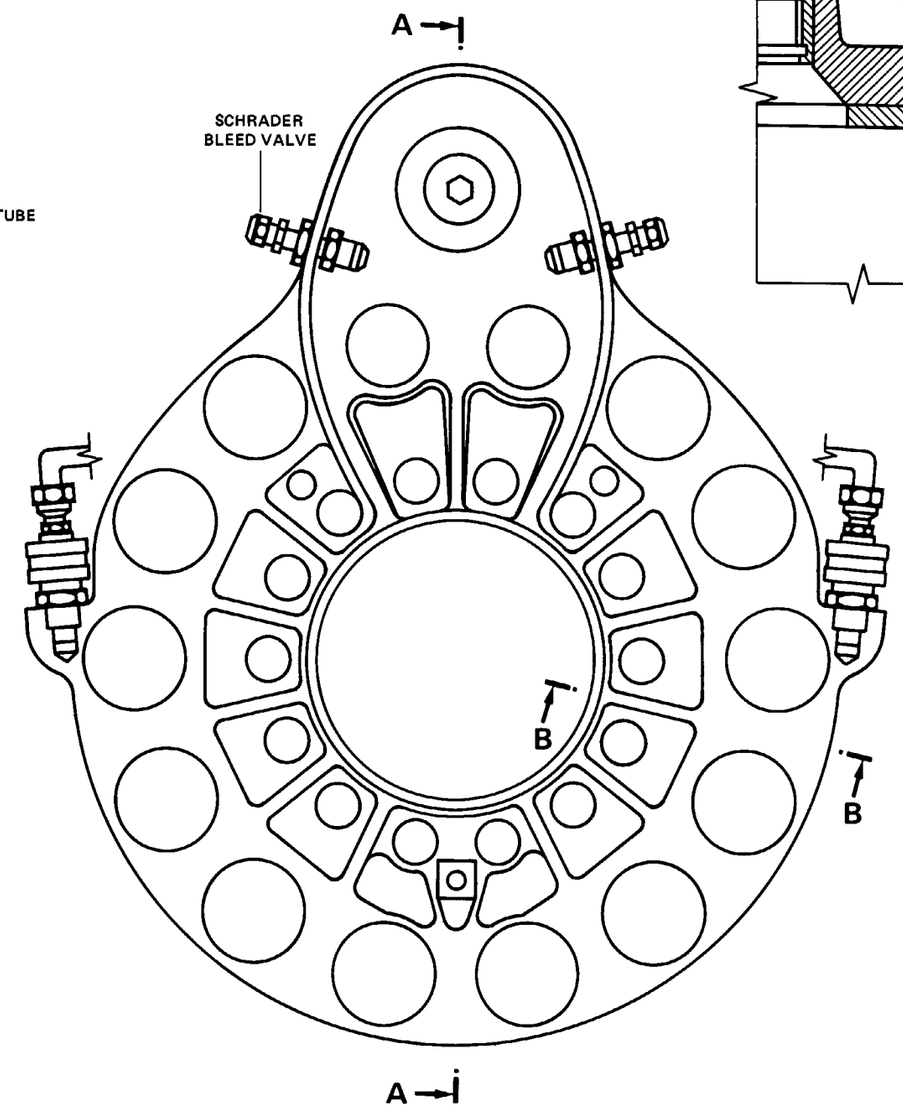


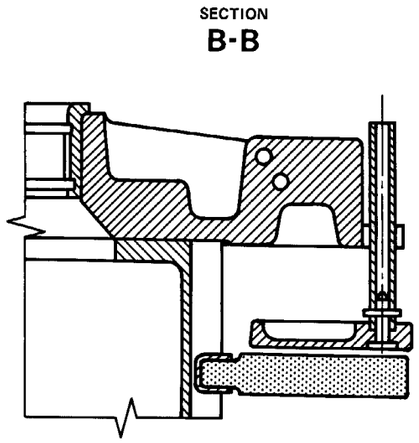
Wheel/Brake Assy (Messier) (Sheet 1/2)
Figure 026



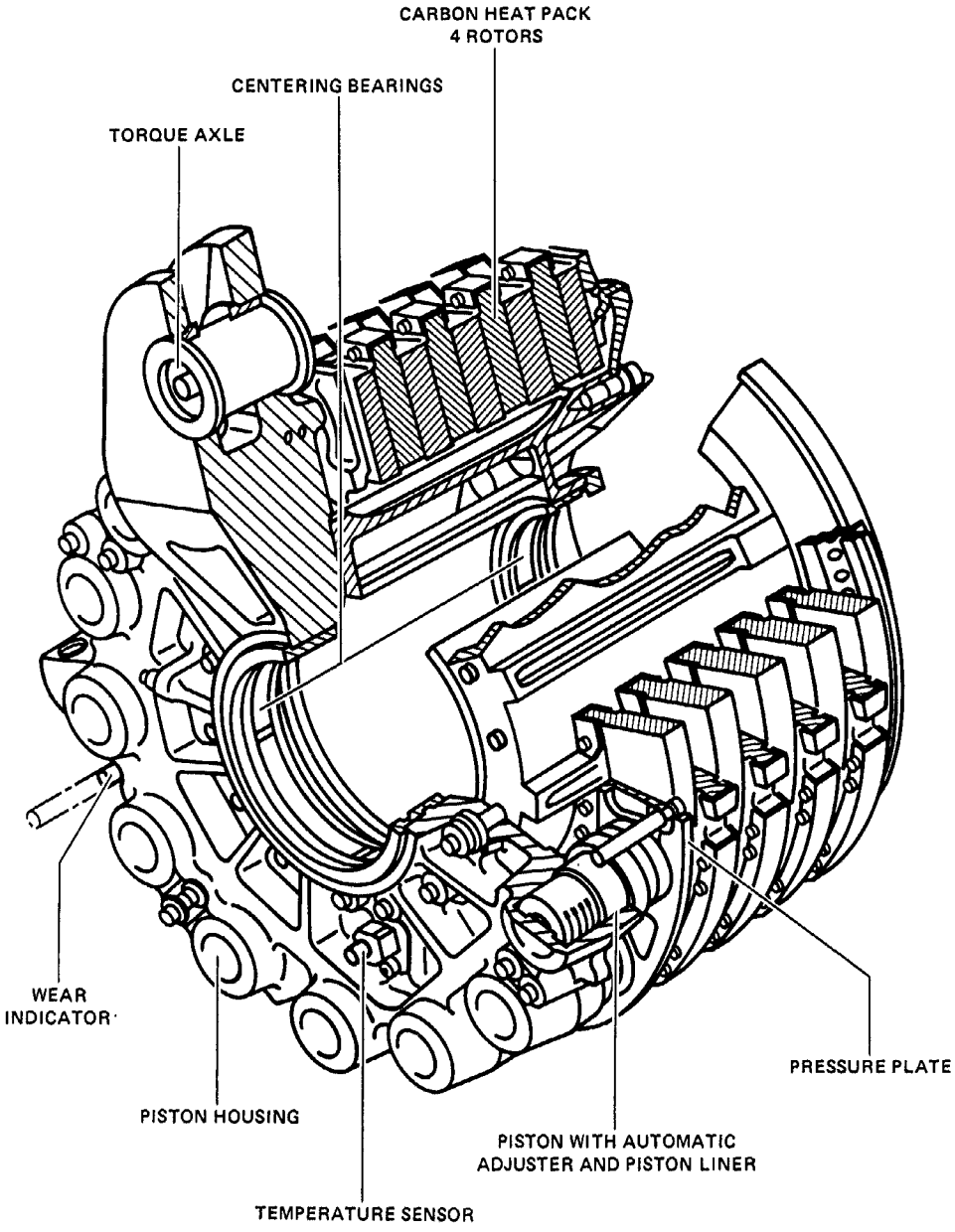
Wheel/Brake Assy (Messier) (Sheet 2/2)
Figure 026







Brake Unit (Messier) (Sheet 1/2)
Figure 027



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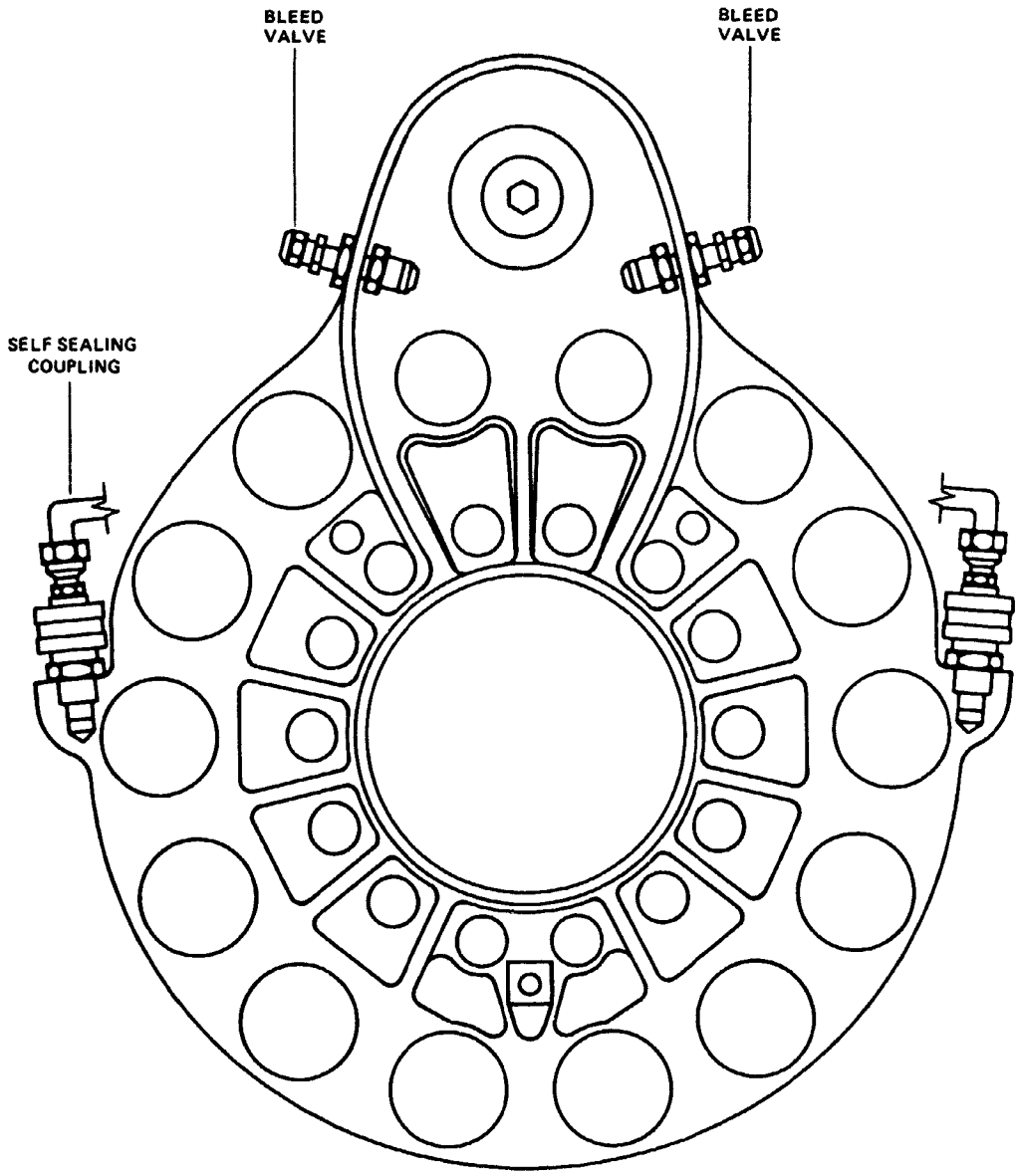
Brake Unit (Messier) (Sheet 2/2)
Figure 027



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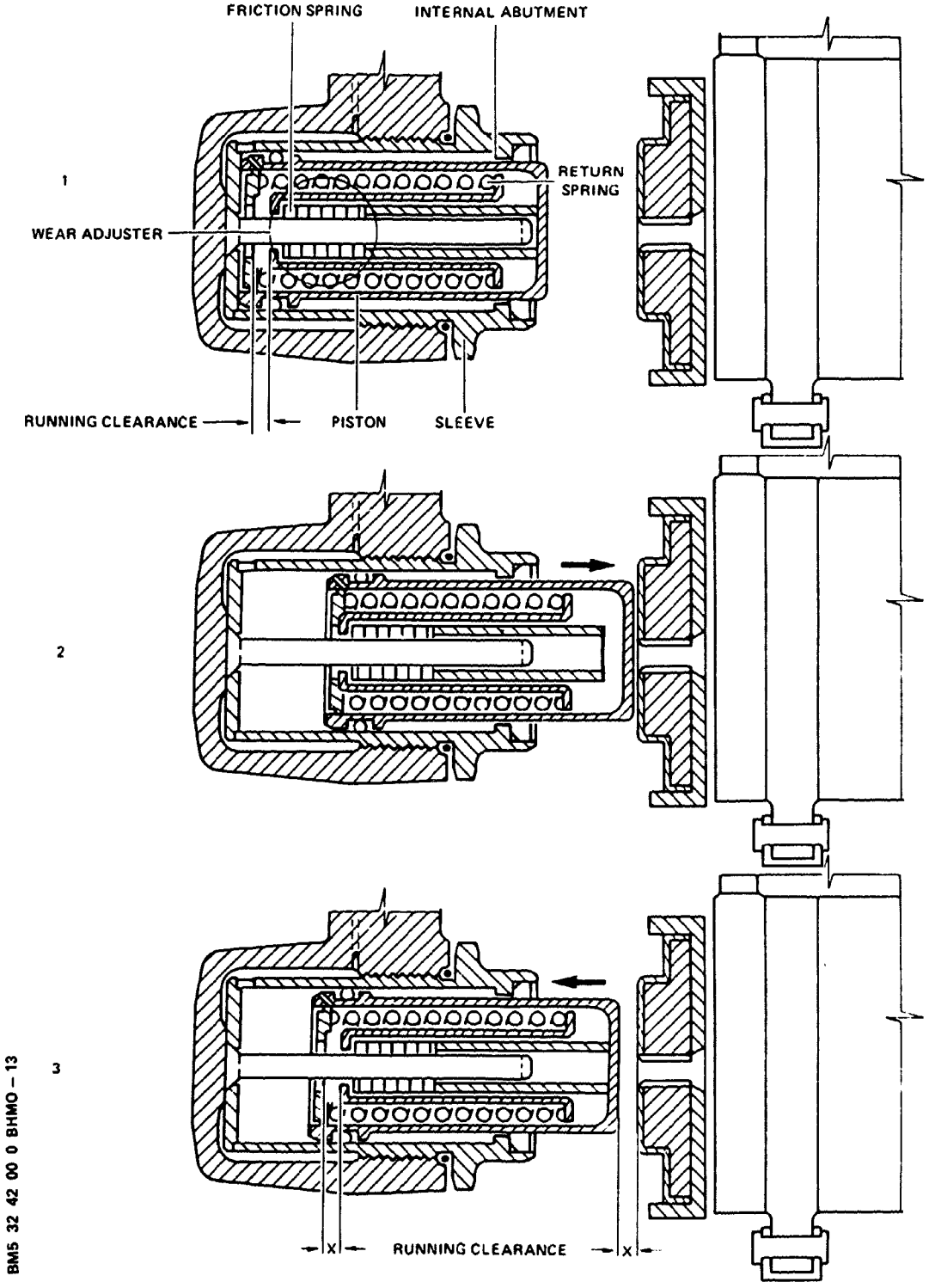
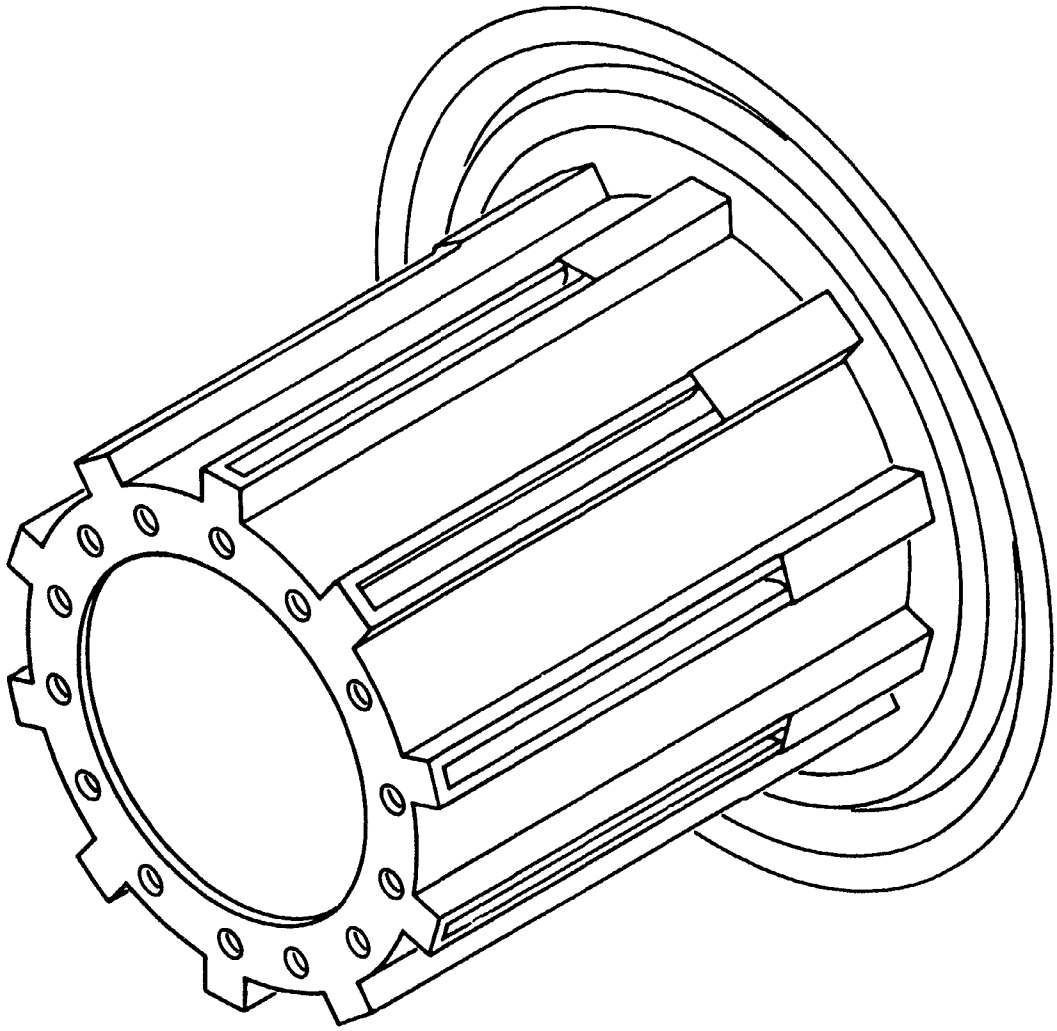
Piston Housing (Messier)
Figure 028



Piston/Adjuster Assembly
Figure 029



BM5 32 42 00 0 BMMO – 13

Torque Tube
Figure 030

steel clips.
The rotors four in all, are driven by the wheel and have nine slots reinforced with steel clips.

1 Temperature sensor (Ref. 32-47) (Ref. Fig. 032)
The temperature sensor indicates the temperature of the heat pack. The temperature sensor body is mounted on the piston housing.

2 Fans (Ref. 32-48)
The fans serve to accelerate cooling of the heat packs. The fans are installed as an option.

3 Wear indicators
Two indicators are mounted on the pressure plate and serve to provide visual indication of overall wear of the heat pack without removal (Parking brake applied).

(d)Not applicable

(e)Characteristics
Approximate weight : 74 Kg (nominal).
Maximal energy : 70 MJ.
Maximal capacity (approximate) : 103 cm^3
Warning temperature : TBD.

L. Tachometers (Ref. Fig. 033)

R **ON A/C 101-200,

(Ref. Fig. 034)

R **ON A/C 001-100,

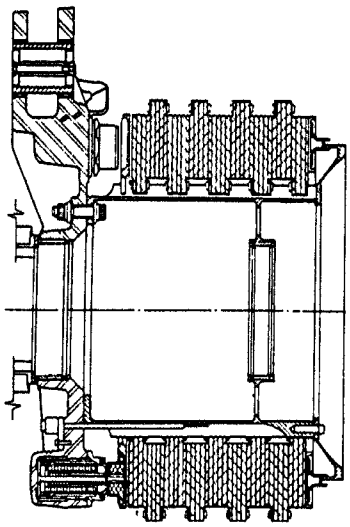
(Ref. Fig. 035)

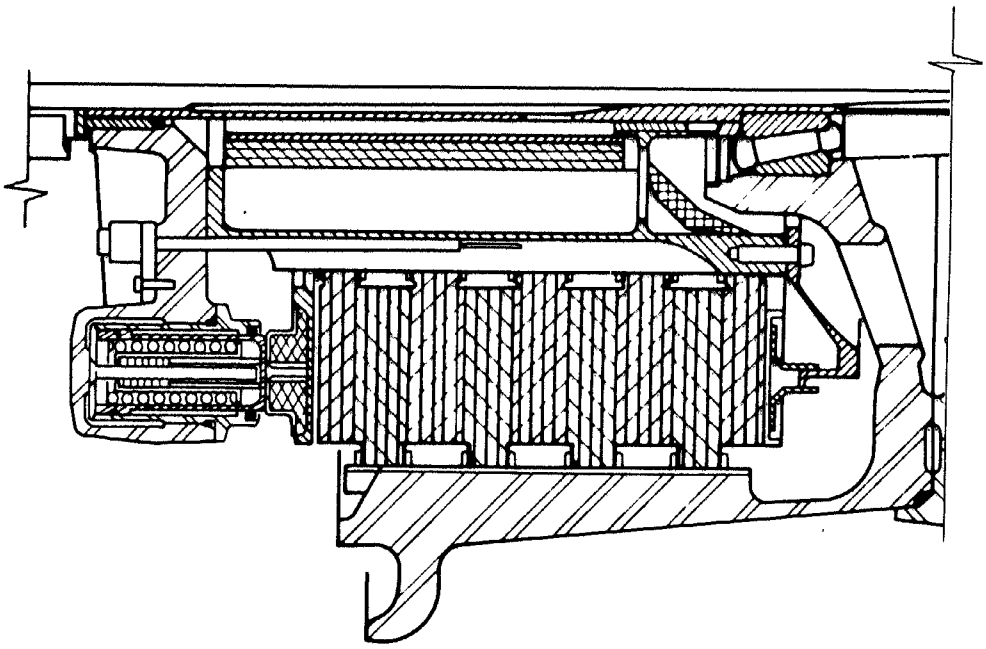
R **ON A/C ALL

Ten identical tachometers are installed in the wheel axles (1 for each main and nose gear wheel).
The tachometers provide wheel speed information. Each tachometer is equipped with two 200-tooth rings :
- 1 stationary ring associated with a coil and permanent magnet
- 1 ring driven by the wheel.

Rotation of the wheel causes variations in the induction frequency proportional to the angular speed (frequency = 200 x angular speed). The variable frequency voltage delivered by the tachometer is sent to the brake system control unit.

M. Brake System Control Unit (Ref. Fig. 036)
The brake system control unit is of 5 MCU dimensions and located in the avionics compartment in rack 90VU on shelf 94VU.
The brake system control unit performs the following functions :
- Control of the master valves and pressure delivered to the brake servovalves
- Regulation of braking by controlling the speed of each of the braked wheels





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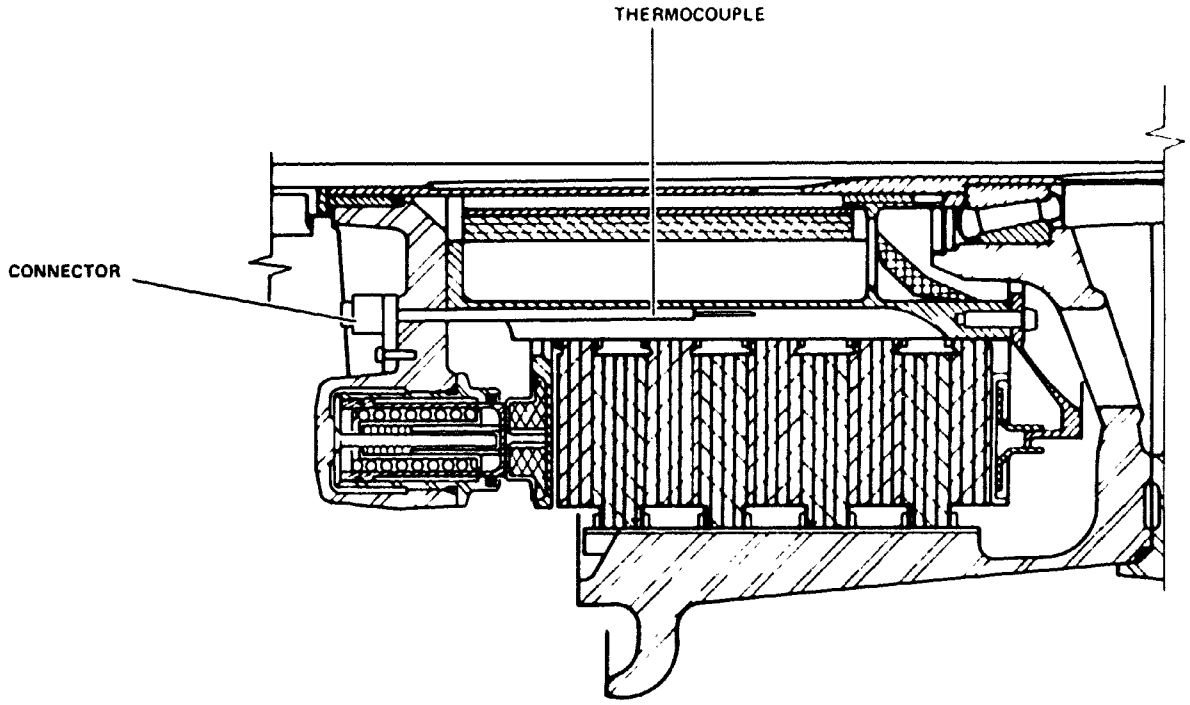
Heat Pack - Rotors and Stators
Figure 031



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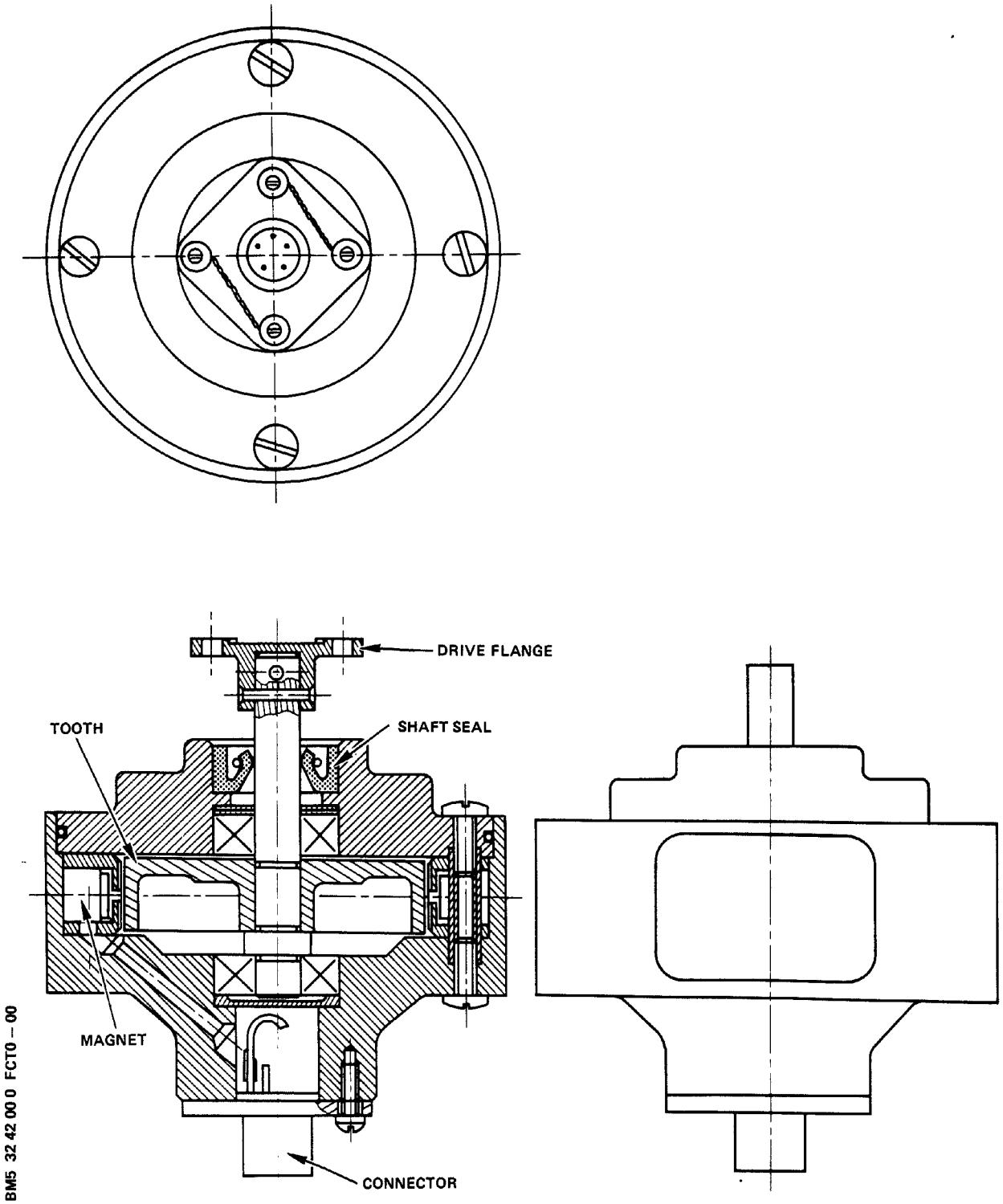
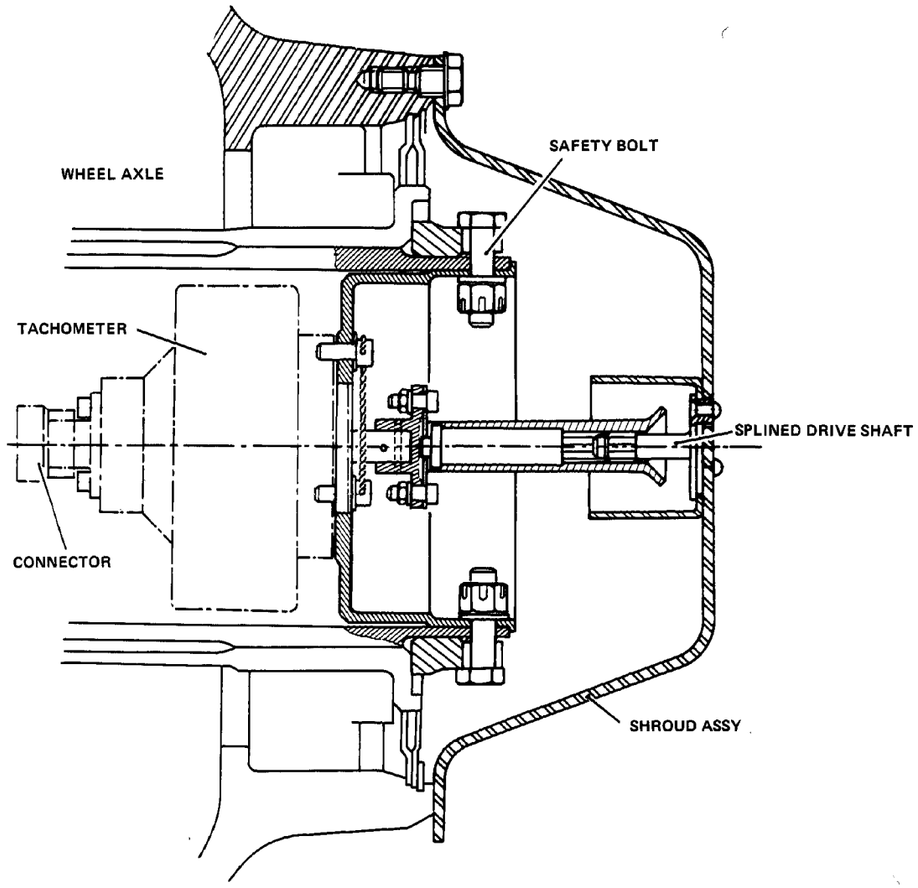
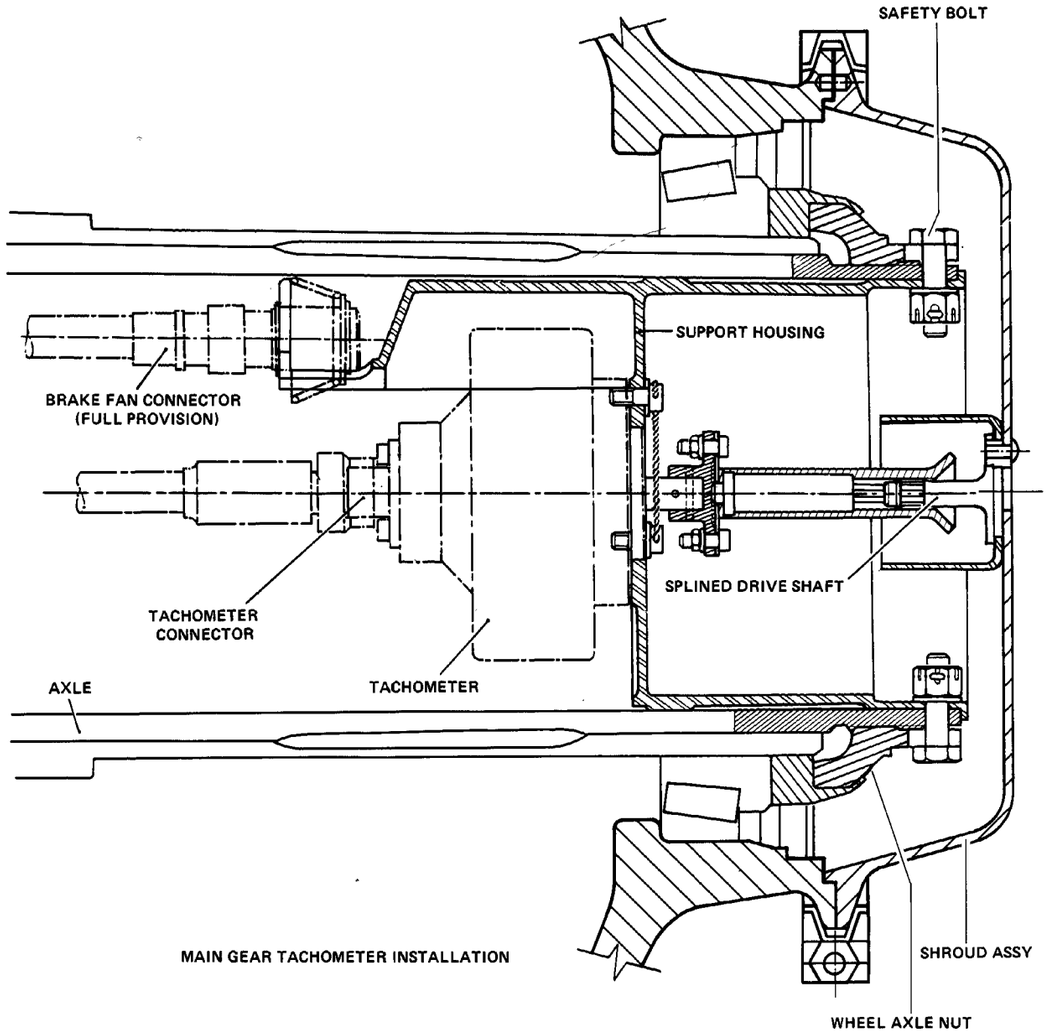
Temperature Sensor
Figure 032



Tachometer
Figure 033



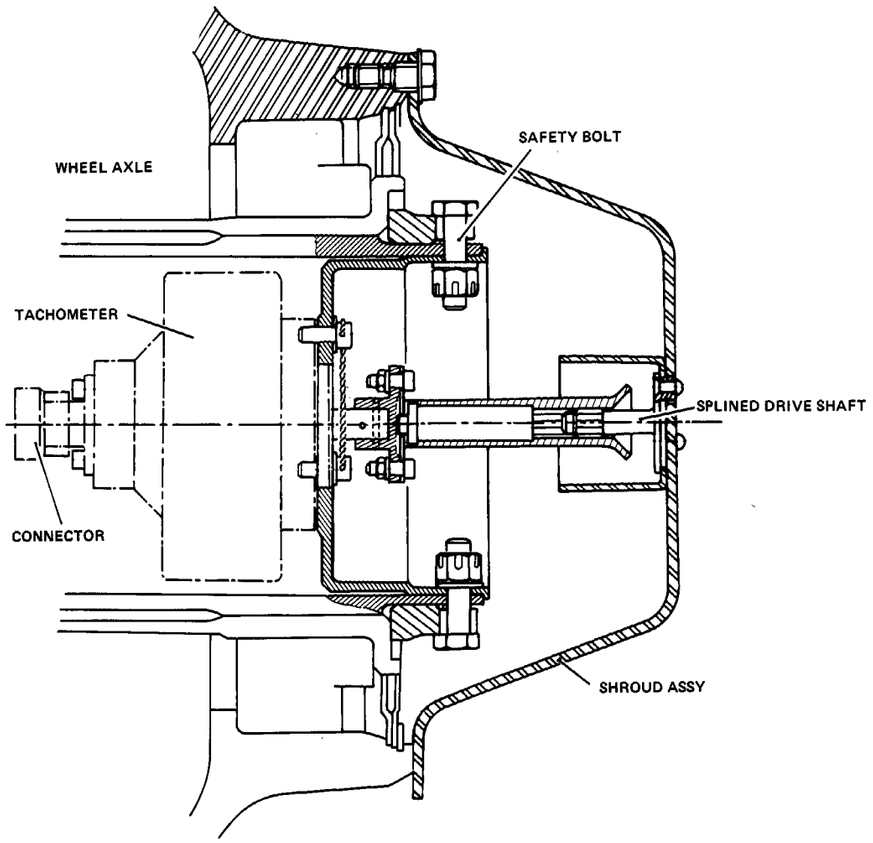
NOSE GEAR TACHOMETER INSTALLATION



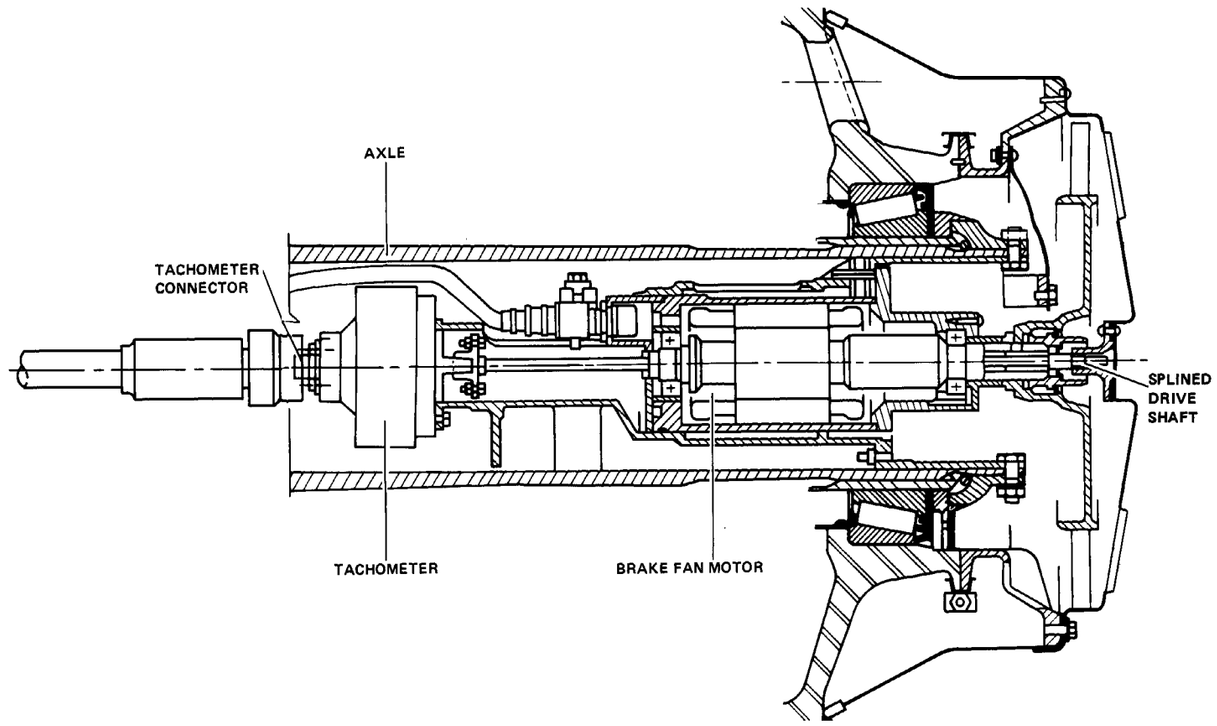
MAIN GEAR TACHOMETER INSTALLATION

BM5 32 42 00 0 GNMO – 16

Tachometer Installation
Figure 034



NOSE GEAR TACHOMETER INSTALLATION



MAIN GEAR TACHOMETER INSTALLATION

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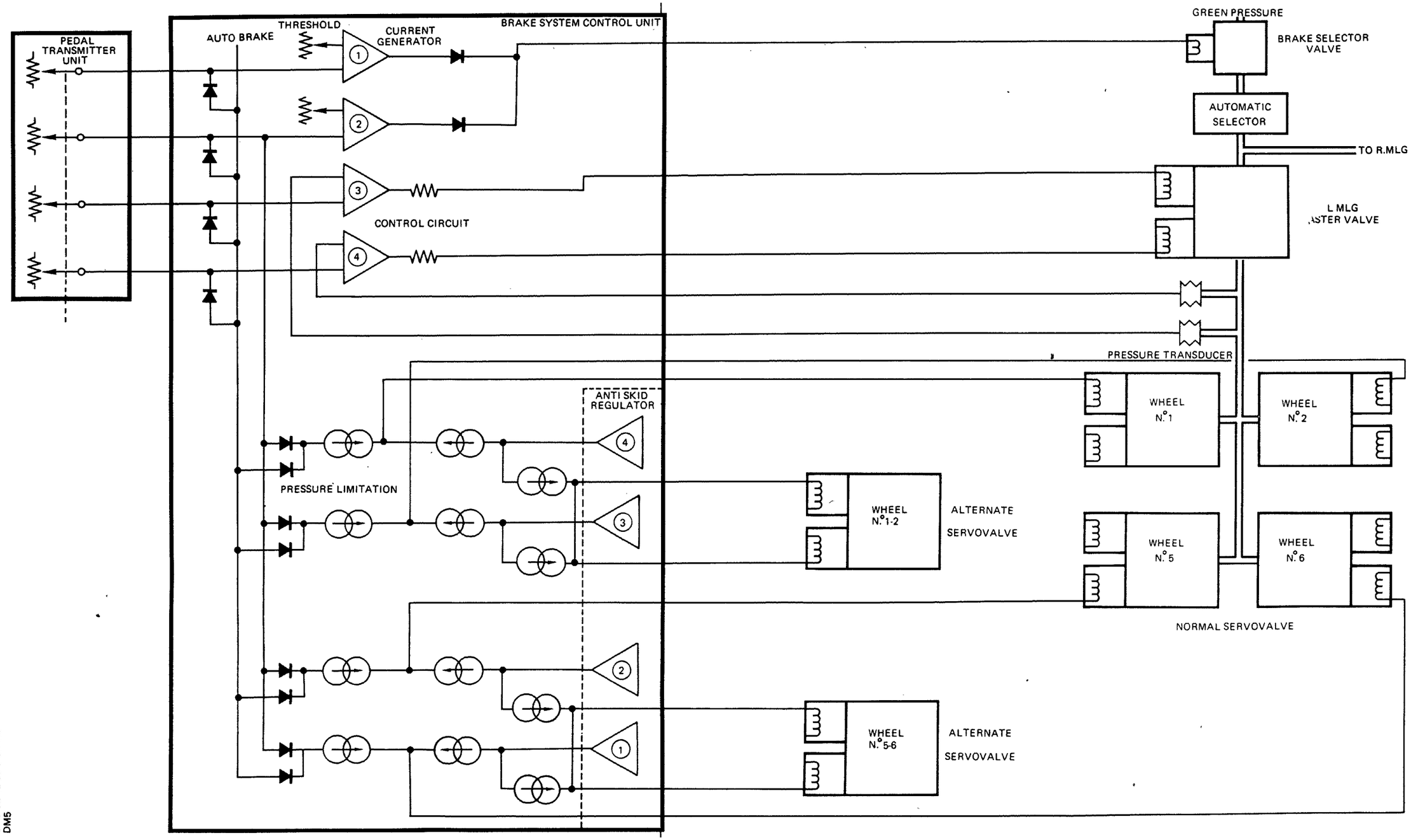
Tachometer Installation
Figure 035



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DM5

Brake System Control Unit - Integration
Figure 036

- BITE function with memorization of faults, including that of transient faults, affecting the various system components and enabling fault location during maintenance.
- Control of automatic braking via an accelerometer housed in the unit.

The first two functions are achieved using analog technology the latter two using digital technology.

4. Operation

A. Pedal Control

(1)General

The various inputs and outputs associated with the control are shown in the schematic.
(Ref. Fig. 037)
(Ref. Fig. 038)
(Ref. Fig. 039)
Functions performed :
- Control of the brake selector valve
- Slaving of the pressure at the two master valves
- Limiting of maximal pressure by means of the eight Normal servovalves (in the event of master valve failure)
- Avoidance of a jerk at brakes filling
- Control of the rate of the brake pressure rise via the antiskid system (Ref. Fig. 039)
- Automatic braking of the wheels upon initiation of landing gear retraction.

(2)Selector valve control

Opening of the selector valve is controlled by depression of a left or right pedal past the load threshold defined in paragraph 2.B.

(3)Master valve pressure slaving.

(a)Principle

For each gear, the brake command, input by depressing a pedal, is transformed to pressure by a master valve, slave controlled by two pressure transducers (Ref. paragraph 2.E.).

(b)Operation

Pressure slaving at each master valve is achieved by two independent feedback loops acting on the two coils. In each circuit an amplifier (3) or (4) delivers a current proportional to the difference between the pilot input (pedal depression) and the pressure feedback signal supplied by the transducer. The current in each loop is limited to 60% of the maximal value (zero flow) so that neither circuit can alone command zero flow and prevent supply to the brakes in the event of circuit failure.
The maximal pressure delivered by the master valve is that of the system, i.e. 206 bars (2987 psi).

(4)Limitation of pressure in the event of failure

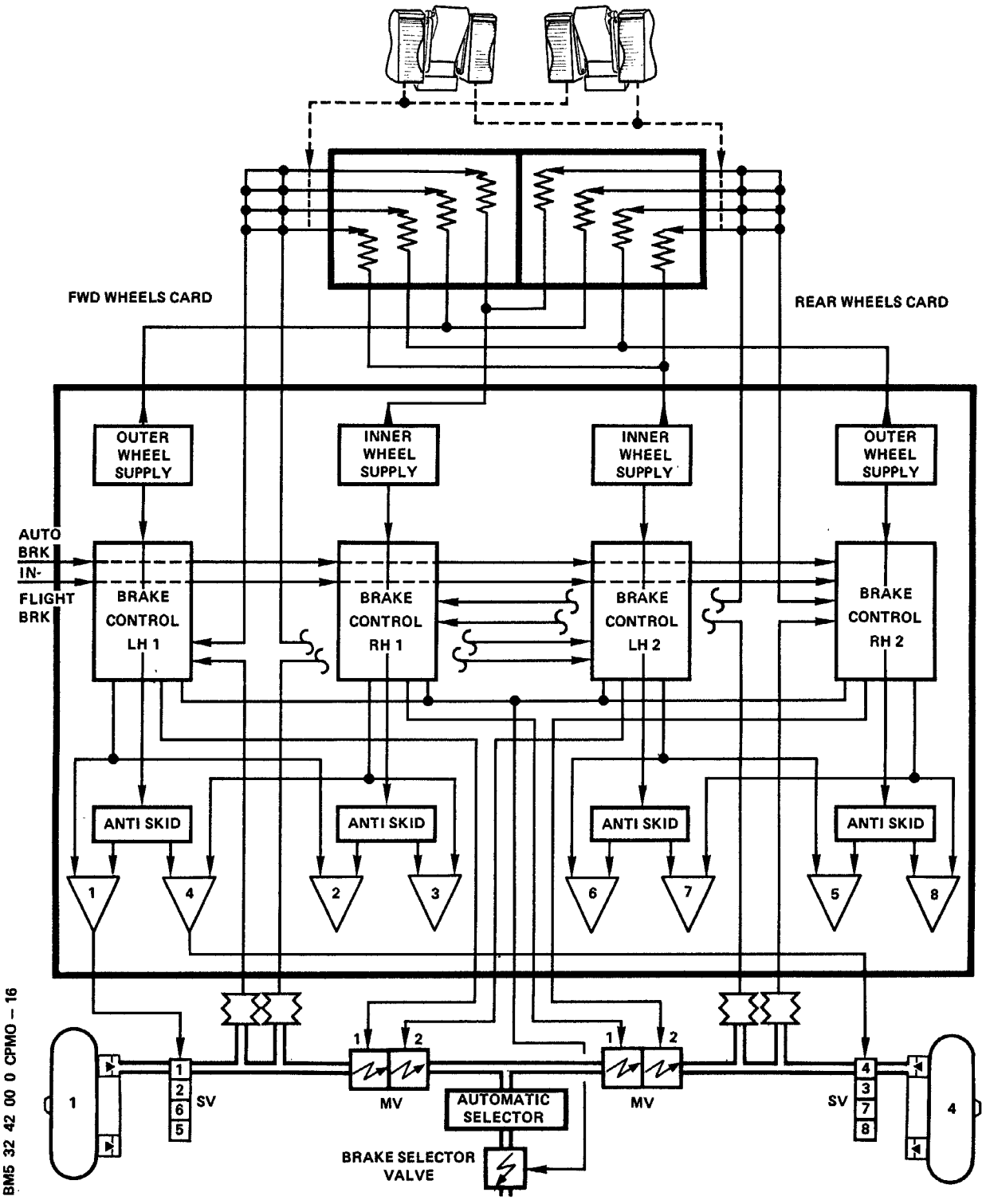
In the event of failure resulting in a pressure greater than that commanded upstream of the Normal servovalves, an electrical circuit limits the pressure to 25 bars (362.5 psi) above that commanded at the pedal.

(5)Braking jerk limitation

On selector valve opening, a signal proportional to the pedal depressing speed is added to the pressure order (given by the brake pedal transmitter) to increase this order and avoid a jerk in the brakes.

(6)In-flight wheel braking

As soon as the landing gear control lever is placed in UP position, the brake selector valve is energized and a braking order, limited at 40 bars, is sent to each of the master valves. At the same time, an



Normal Braking - Electrical Control - Schematic
Figure 037

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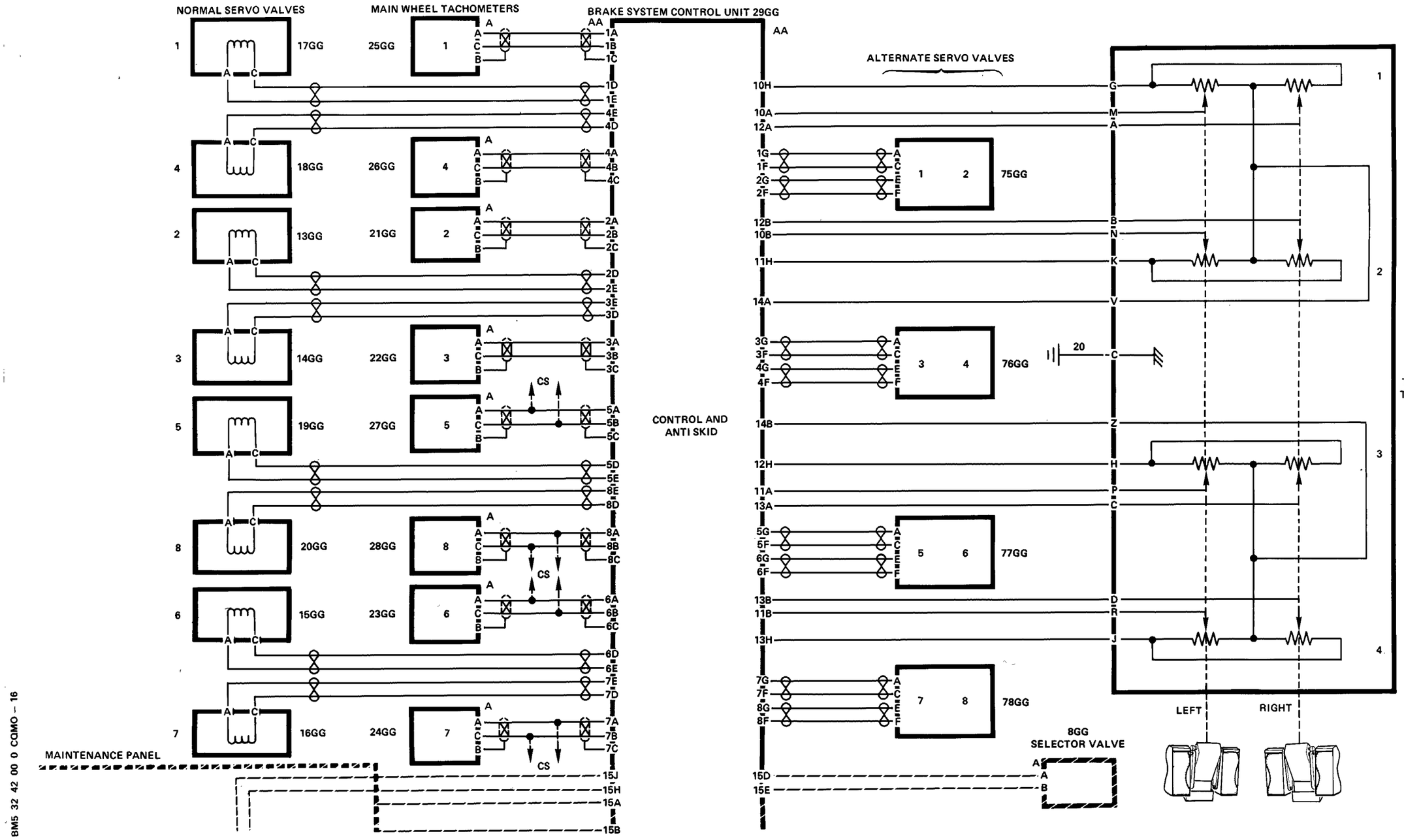
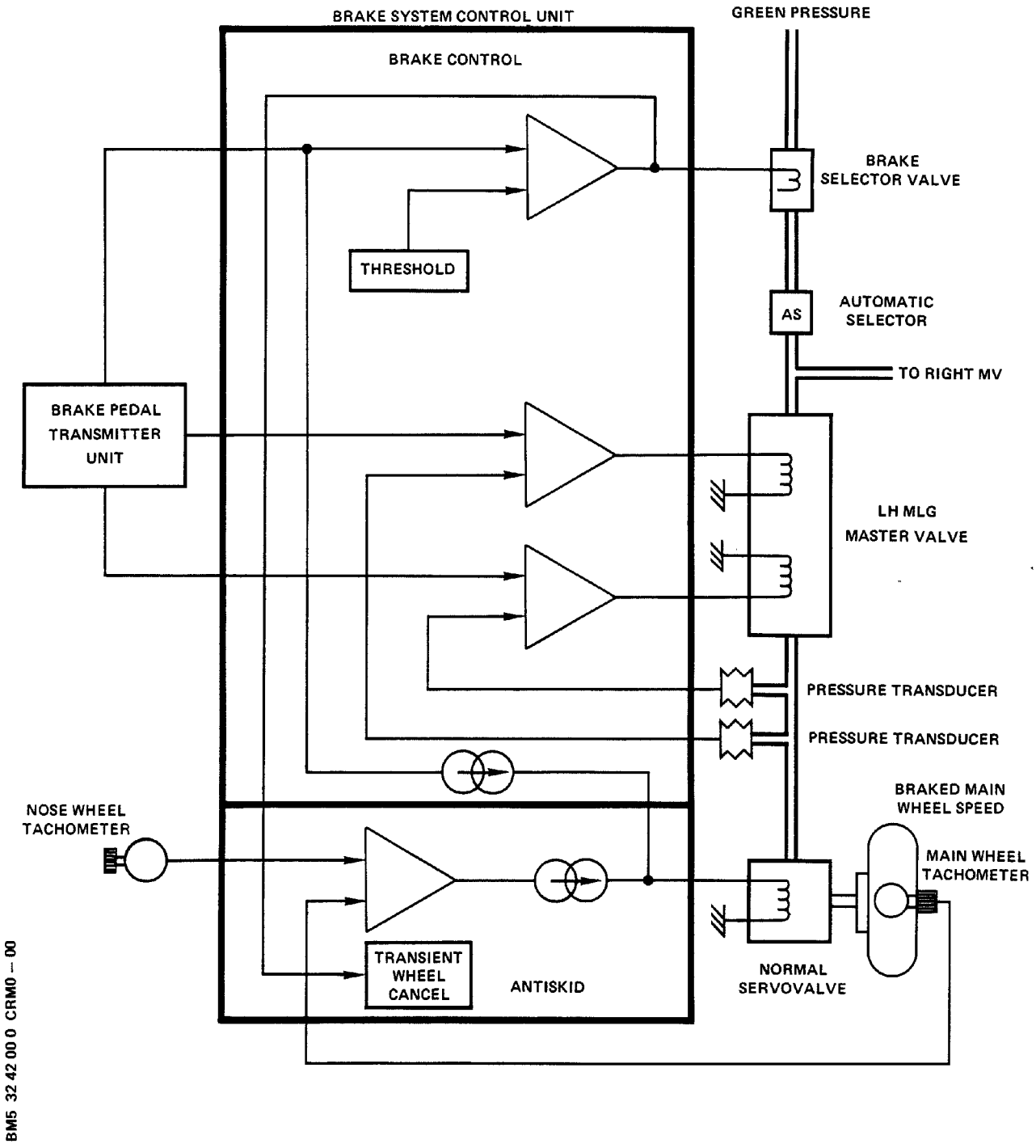


BM5 32 42 00 0 CQMO – 16

Braking Electrical Control - Schematic (Part 1)
Figure 038



Normal Braking - Principle
Figure 039

electrical order inhibits the anti skid system to prevent untimely brake release.

R **ON A/C 105-200,

R Post SB 32-2106 For A/C 105-200,

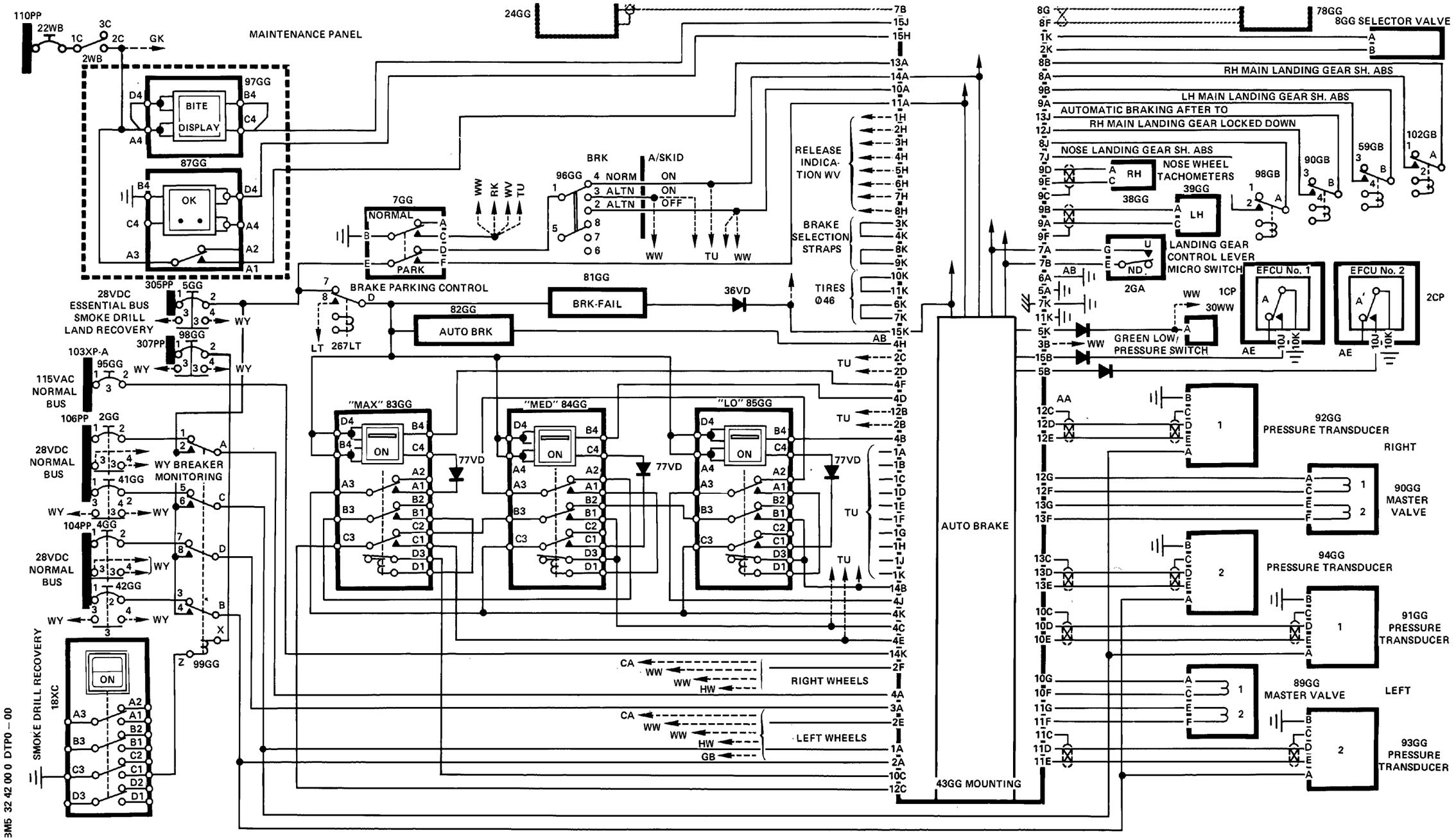
R As soon as the landing gear control lever is placed in UP position, the
R brake selector valve is energized and a braking order, limited at 23
R bars, is sent to each of the master valves. At the same time, an
R electrical order inhibits the anti skid system to prevent untimely brake
R release.

R **ON A/C ALL

After 3 seconds, or as soon as the right main gear (relay GB) is no longer downlocked, in-flight wheel braking and the anti skid inhibition aredeactivated.

(7)BRK FAIL warning light on center instrument panel.
The BRK FAIL warning light comes on if both pressure transducers associated with each master valve indicate a pressure below 20 bars (290 psi). The warning is self-held, even on the ground. Placing the BRK/A/SKID switch in ALTN/ON position (braking with anti skid powered by the Yellow hydraulic system) causes the BRK FAIL light to go off as braking in this case is achieved using the Yellow hydraulic system (no master valve).
(Ref. Fig. 040)

B. Anti Skid Control
(Ref. Fig. 041)
(1)The anti skid system inputs and outputs are shown in the schematic
NOTE : The brake system control unit is designed for use with two types of brakes and two diameters of main gear tires.
Selection is achieved via shunts located at the rear of the unit ; aircraft wiring side.
(2)Principle
(Ref. Fig. 042)
The speed of each main gear wheel is compared to that of the aircraft speed as provided by the nose gear wheels. When, with braking ordered, the speed of a braked wheel decreases to below 0.88 times the aircraft speed, the anti skid system delivers a brake release order to maintain the wheel slip value, following skid ratio law.
The anti skid system includes the corrective networks necessary to stabilize the feedback loop.
The servovalve is the pressure-servoed electro-hydraulic component.
(Ref. paragraph 2.G.)
Brake static gain is approximately 250 mN/bar.
The tachometer transforms the angular velocity of the braked wheel into frequency (Ref. paragraph 2.L.).



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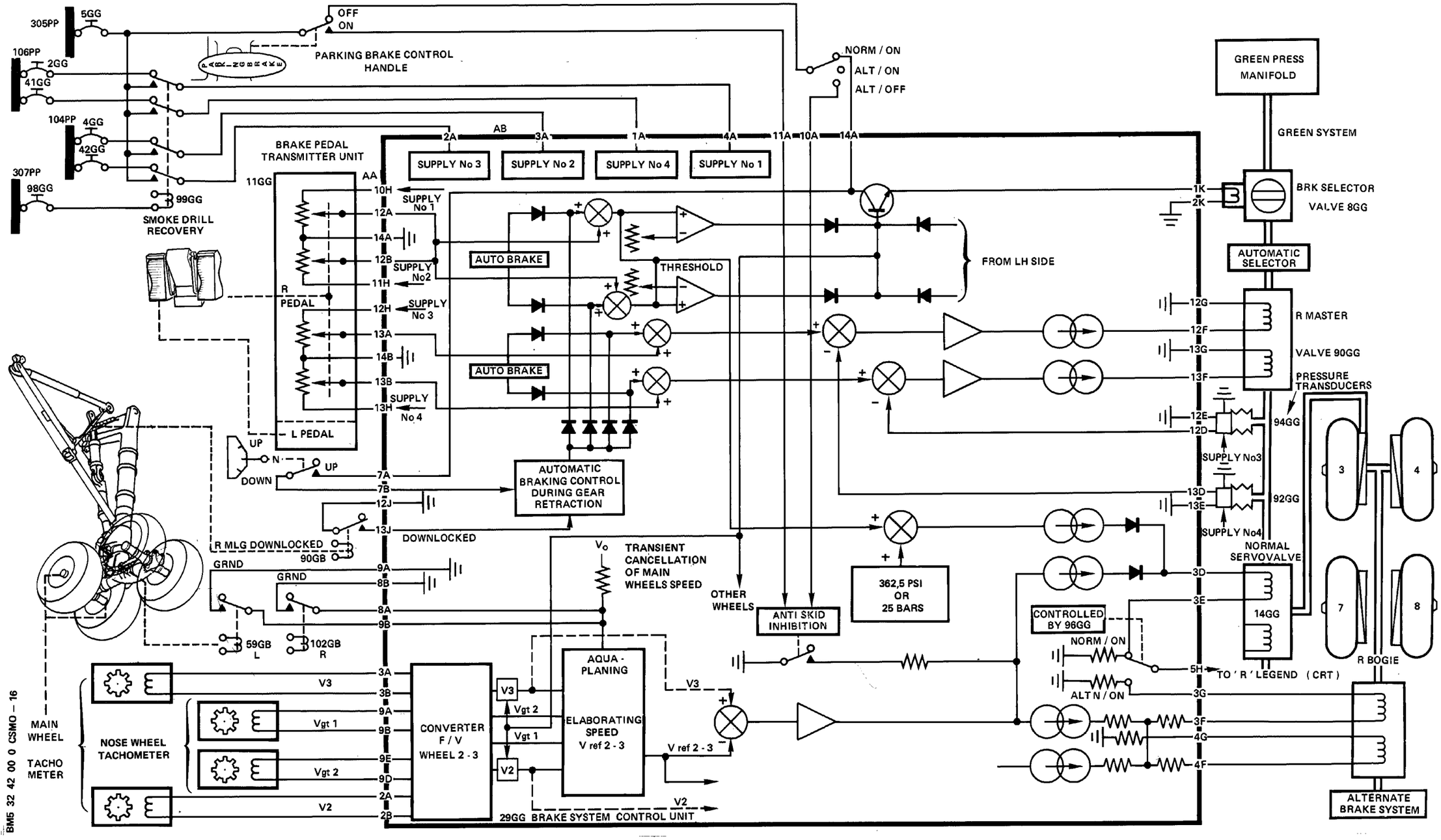
Braking Electrical Control - Schematic (Part 2)
Figure 040



Anti Skid - Schematic
Figure 041

CALCULATION OF WHEEL SLIP VALUE θ :

LET : ωb = ANGULAR VELOCITY OF BRAKED WHEEL
ω = FREE ROLLING SPEED OF SAME WHEEL

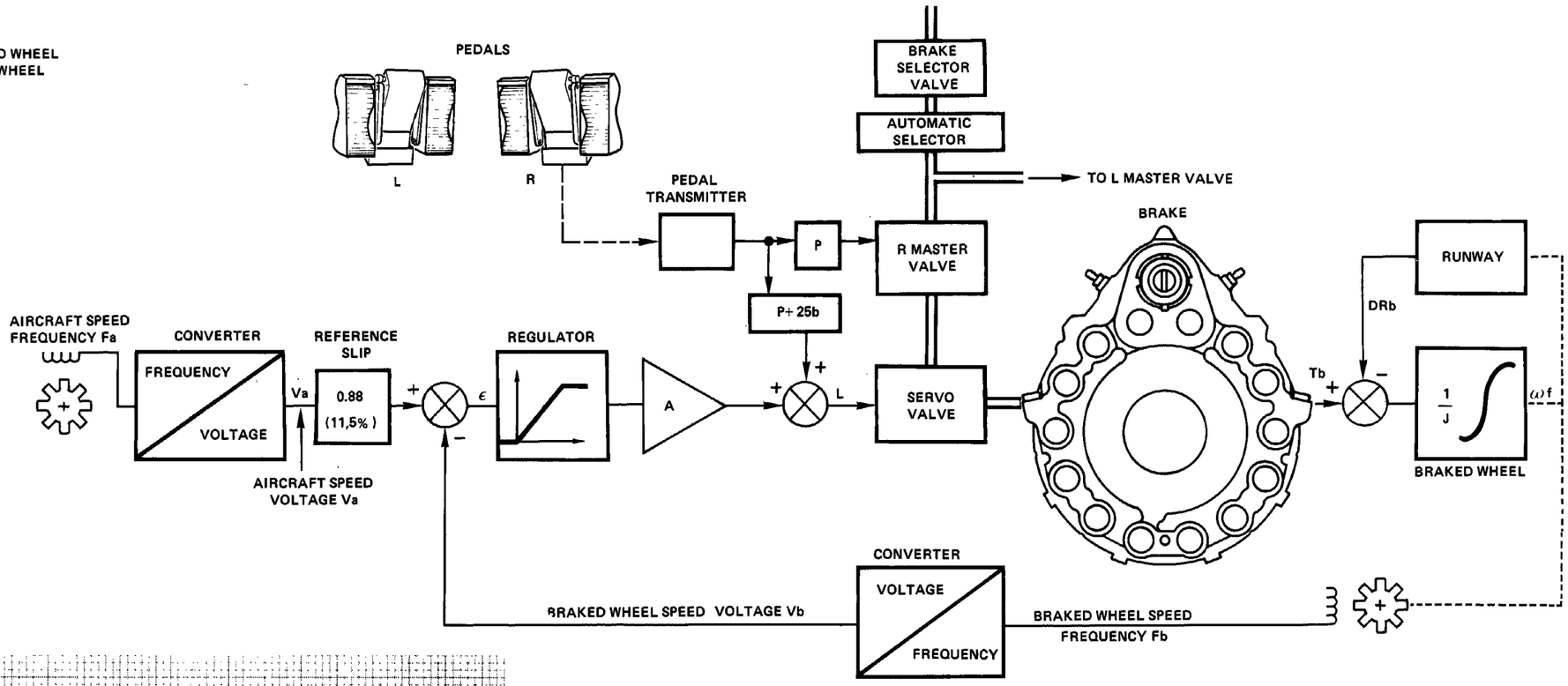
$$\theta = \frac{\omega - \omega b}{\omega}$$

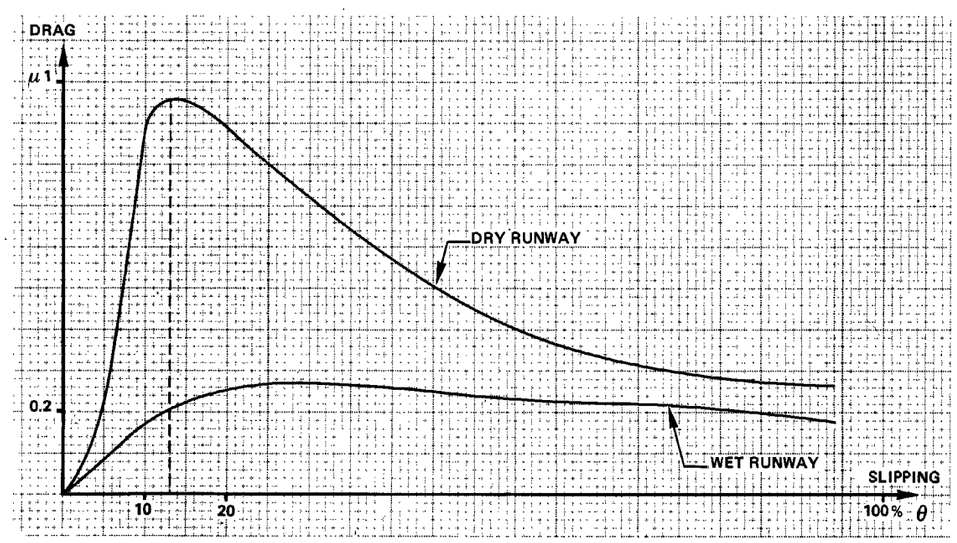
θ = 0 IF THE WHEEL IS FREE ROLLING
θ = 1 IF THE WHEEL IS LOCKED

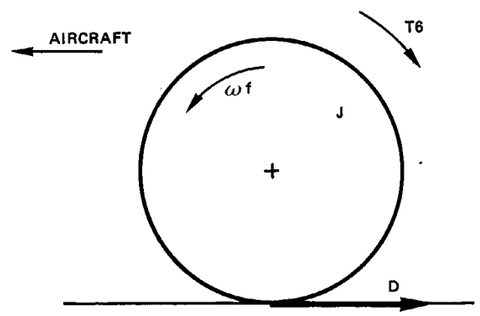
SERVOVALVE TRANSFER FUNCTION (APPROX.)

$$\frac{P}{i} = \frac{K}{1 + \frac{2s\epsilon}{\omega n} + \frac{1s^2}{\omega^2 n}}$$

WHERE : P = DELIVERY PRESSURE
i = INPUT CURRENT
K = STATIC GAIN
ϵ = DAMPING RATIO
s = LAPLACE VARIABLE
ω = NATURAL FREQUENCY







WHEEL/RUNWAY BEHAVIOUR IS GOVERNED BY THE EQUATION :

$Tb - DRb = J\omega b'$

Tb' = BRAKE TORQUE
D = DRAG
D = μW
TIRE/GROUND FRICTION COEFFICIENT DEPENDENT ON THE STATE OF THE RUNWAY AND THE WHEEL SLIP VALUE
W = LOAD APPLIED ON THE WHEEL
Rb = BRAKED WHEEL ROLLING RADIUS
J = WHEEL INERTION
$\omega b'$ = DECELERATION OF THE BRAKED WHEEL

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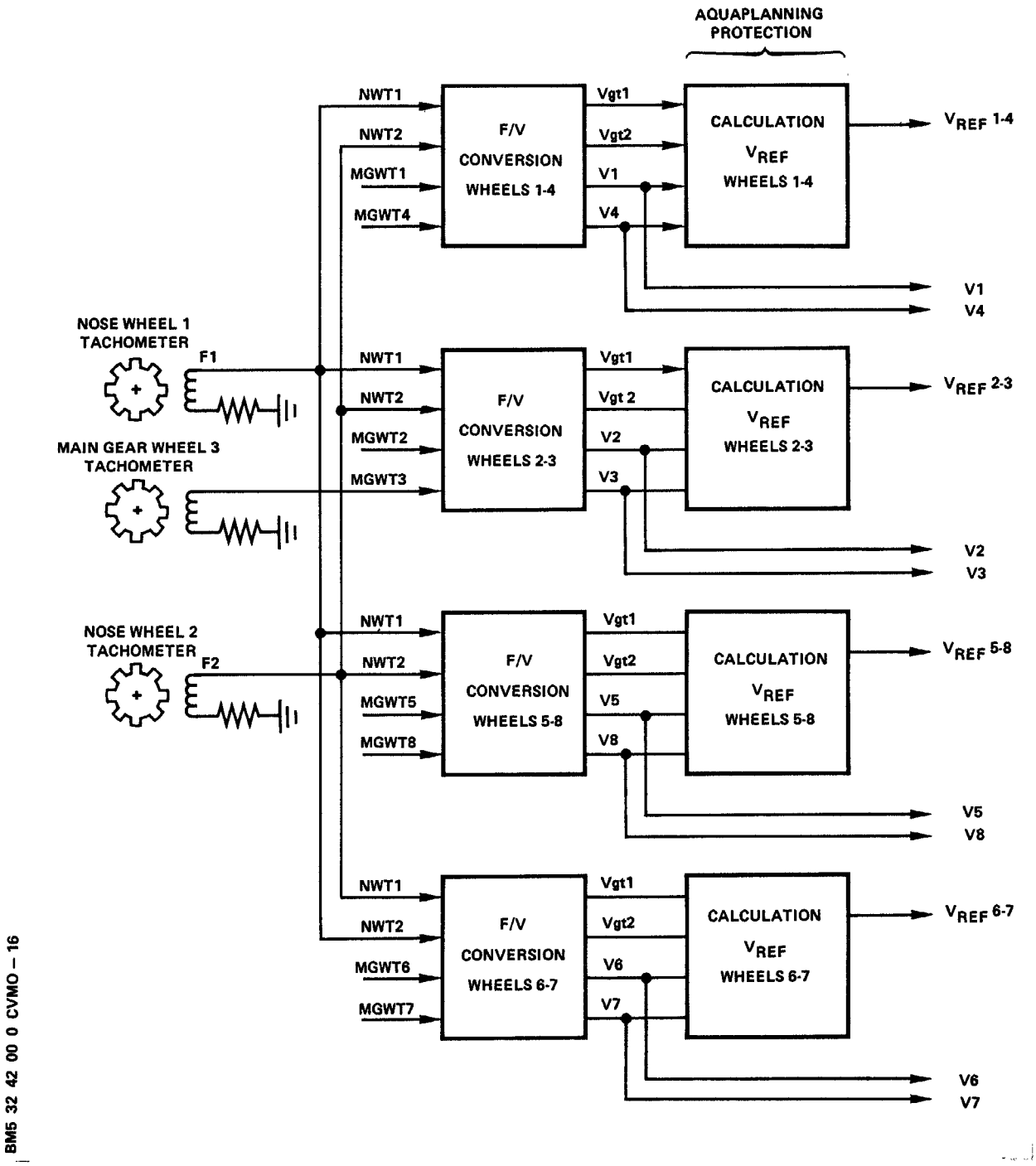
Anti Skid - Principle
Figure 042

The frequency/voltage converter delivers a voltage proportional to the input frequency.
The aircraft speed is obtained in the same way on the basis of the rotational speed of the nose gear wheels.

(3)Description
The brake system control unit receives five 28VDC supplies (one for the electronic functions of each pair of braked wheels located symmetrically with respect to the aircraft centerline : a total of four power supplies, and one for brake system indicating and selection).

(a)Calculation of aircraft speed (Ref. Fig. 043)

1 Normal operation
The aircraft speed is obtained from the two tachometers installed in the nose gear wheels. The frequency from each tachometer is applied to four frequency/voltage converters. The output signal is proportional to the input frequency and the supply voltage.
The outputs from the two converters with the same power supply are compared and the highest voltage is used to generate the reference slip for the pair of braked wheels located symmetrically with respect to the aircraft centerline.



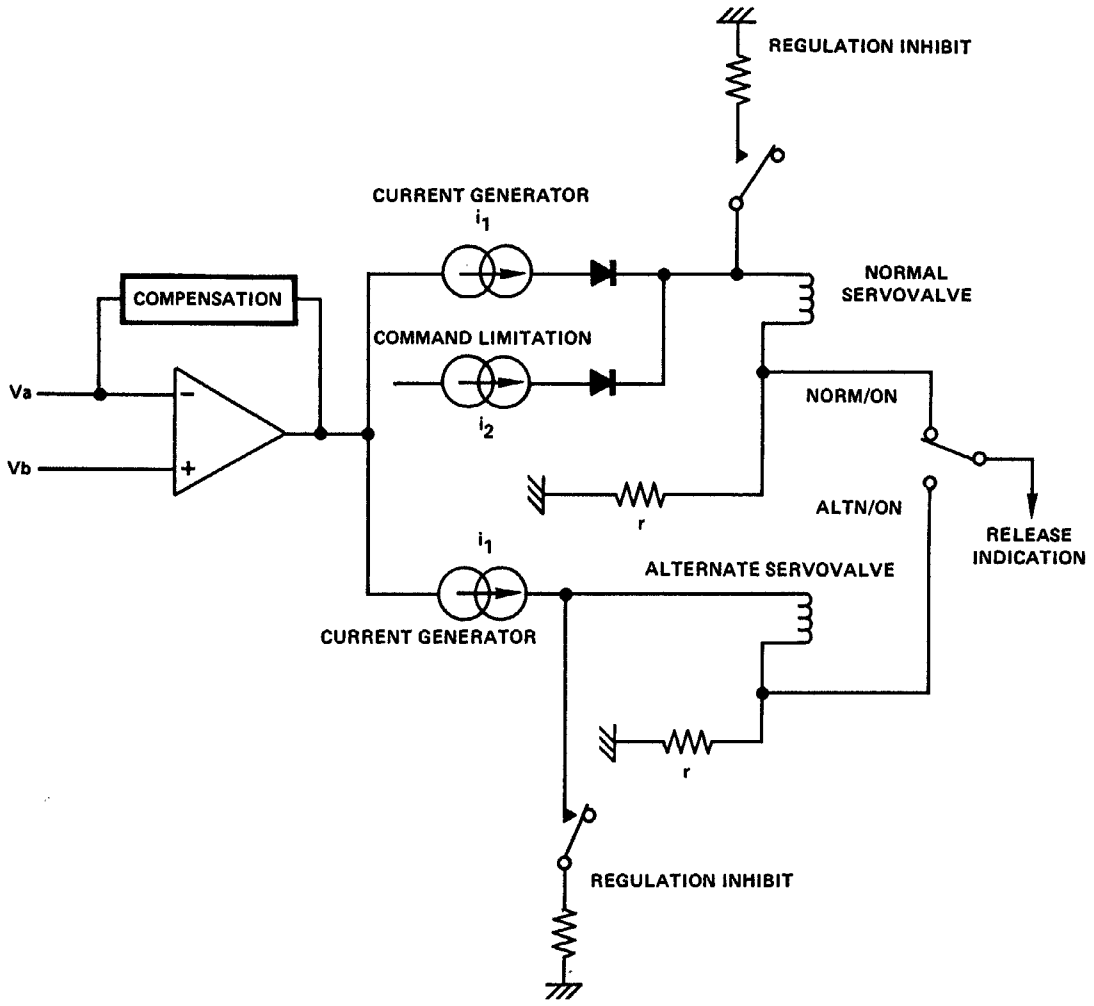
Calculation of Aircraft Speed
Figure 043

2 Operation in the event of aquaplaning of nose gear wheel.
If no protection circuit were provided the following would be possible.
In the event of aquaplaning of both nose gear wheels, the aircraft speed as indicated by the tachometers would be lower than the true aircraft speed. Braking of the main gear wheels would no longer be regulated and tire burst on the braked wheels would be possible.
A safety circuit ensures braking efficiency in the conditions described above. This circuit detects the onset of a locked nose wheel condition. The aircraft speed is then memorized and decreases at a rate of 2.5 m/s^2. Braking is regulated with reference to this speed.

3 Operation prior to nose gear touchdown
This circuit is also supplied with main gear shock absorber compressed information. In flight the shock absorbers are extended and a fictive aircraft speed signal Vo is present. The eight brakes are released as wheel speed is zero. At main gear touchdown the wheels are free to rotate whatever the position of the pedals. With one main gear shock absorber compressed the fictive aircraft speed decreases at a rate of 2.5 m/s^2 while the speed of the main gear wheels increases and exceeds the fictive aircraft speed. The fictive aircraft speed follows that of the main gear wheels and the maximum value attained is memorized and corresponds to the aircraft speed. Pending nose gear touchdown this speed decreases at a rate of 2.5 m/s^2. This speed is replaced by that of the nose wheels at nose gear touchdown when the nose gear shock absorber is compressed and the speed attained by the nose wheels is sufficiently high.

(b) Generation of the speed of each main gear.
The tachometer installed in each main gear wheel is identical to that of the nose wheels. The frequency delivered is converted into voltage.

(c) Regulation (Ref. Fig. 044)
The regulator specific to each braked wheel compares the voltage Va, representative of the aircraft speed, to the voltage delivered by the converter of the braked wheel. These two voltages are delivered by converters having the same supply. The aircraft speed is reduced by the value of the reference slip. The corrective networks and the static gain are adjusted to achieve high-speed system response while maintaining a high level of stability and accuracy.
The diode D only passes brake release orders. The regulator cannot, therefore, anticipate on the pilots braking orders.
The polarization increases the reference slip at low speed to inhibit the regulator.
The regulator delivers a voltage U converted into current to supply the coil of the Normal servovalve I1 and the Alternate servovalve I'1.
Current control is not affected by the impedance of the servovalve coil.
The maximum pressure delivered to the brakes is limited by i1 which cannot drop below iMIN (4 mA) corresponding to a maximum braking pressure of 190 bars.
When sufficient brake release current is available, the voltage at the terminals of resistor r is sent to the right ECAM display unit to provide brake release indication REL (Release) symbolized by 5 green



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Regulation Circuit
Figure 044

bars for the wheel concerned.
Depending on the position of the BRK/A/SKID switch the REL information is supplied by the regulation circuit of the Normal or Alternate servovalve.
A regulation inhibition circuit eliminates all brake release orders that could occur during automatic in-flight wheel braking upon gear retraction (Ref. 32-42-00, paragraph 2.A.(5)) or during Parking braking (for 10 seconds only).
An end-of-braking speed set to 10 m/s from which a bias is introduced in the regulation to cancel the latter at about 5 m/s.
At the end of the braking sequence (speed lower than 10 m/s), a gradual bias increases the skid so that full braking can be obtained.

(4)Indicating (Ref. Fig. 045)

(a)**BRK FAIL** warning light

This light is controlled independently of the microprocessor.

- In flight with gears retracted, the eight brake Release orders are present. If not (absence of at least one **REL** symbol), the **BRK FAIL** warning light comes on and only goes off when the aircraft is on the ground, shock absorbers compressed.
- In the event of anti skid system failure, the **BRK FAIL** warning light remains on for the whole flight. The anti skid sytem is enabled upon completion of in-flight wheel braking during gear retraction.
- When the **BRK/A/SKID** switch is in **ALTN/OFF** position (braking without anti skid protection using Yellow system pressure), the **BRK FAIL** warning light remains on in flight, with gears retracted, as none of the **REL** symbols are on, the anti skid system being inhibited although the brake system control unit remains energized.
- Illumination of **BRK FAIL** warning light causes **MASTER CAUTION** light flash on Captain and **F/O** main instrument panels **3VU** and **5VU** to come on.

(b)Right **ECAM** display unit (Ref. 31-00-00)

The **WHEEL** page is displayed on the right **ECAM** display unit :

- automatically
  - . from Parking brake release up until the first engine throttle control lever is placed in takeoff power position (phase 2)
  - . at landing as soon as the landing gear is downlocked and upto application of the Parking brake (phases 7, 8, 9, 10, 11).
- manually
  - . by pressing the **WHEEL** pushbutton switch on the **ECAM** control panel
- in the event of failure when the **MASTER CAUTION** lights flash on Captain and **F/O** main instrument panels **3VU** and **5VU**.

The **WHEEL** page provides the following information :

- the eight brake Release (**REL**) symbols
- the temperature of each of the eight brakes
- the spoilers configuration.

The normal indications are as follows :

As long as the aircraft is in flight, shock absorbers extended, the eight **REL** symbols are on.

On the ground, shock absorbers compressed, illumination of the **REL** symbols during braking is dependent on the condition of the runway.

With the aircraft at a halt, the eight **REL** symbols are off.

(c)Left **ECAM** display unit (Ref. 31-00-00)

The page indicates the action to be taken by the flight crew.

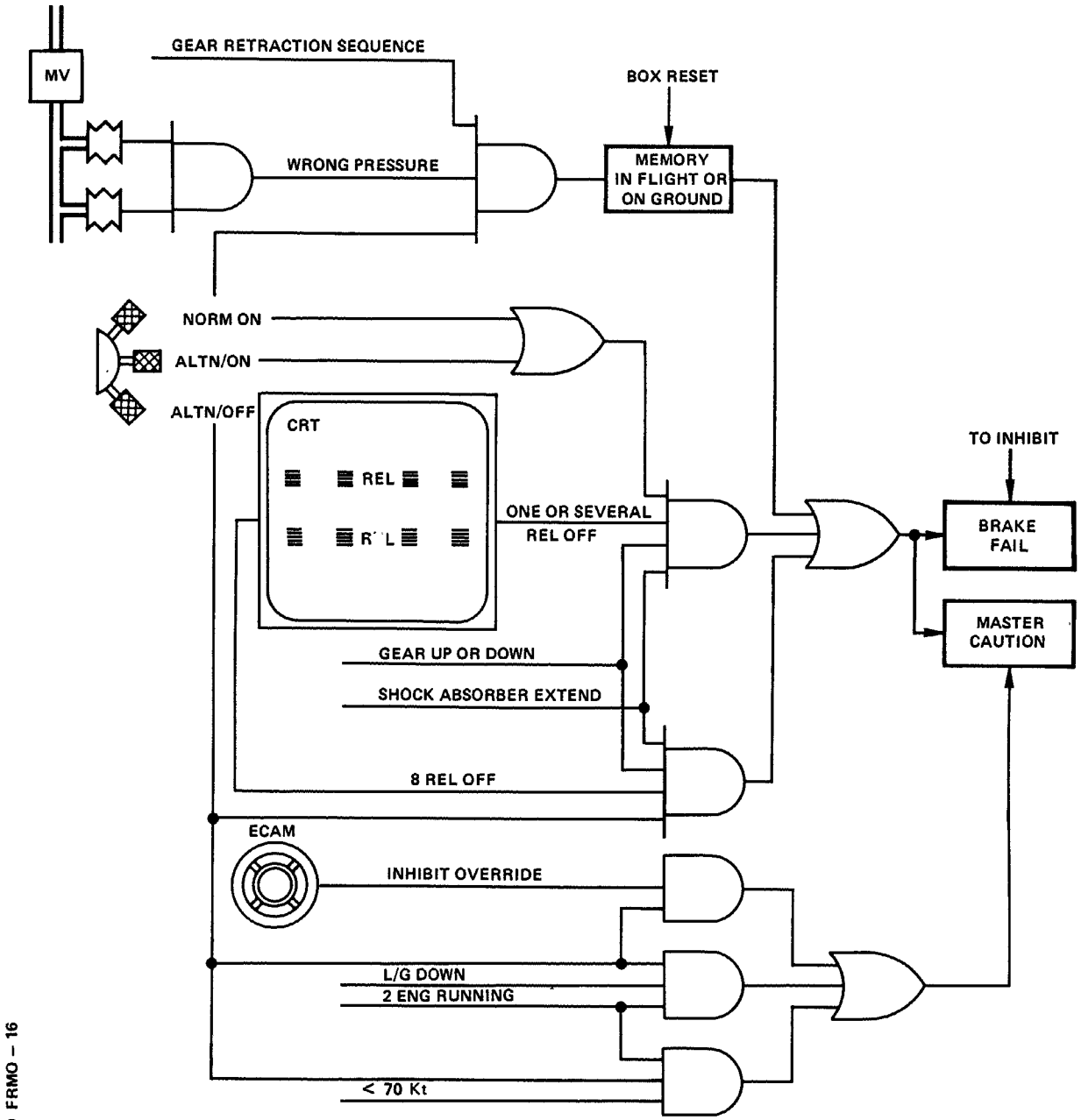
The page is displayed when the **MASTER CAUTION** warning light is on and during the following phases.

- . If **BRK FAIL** warning light comes on, phases 7, 8, 9
- . If **BRK/A/SKID** switch is in **ALTN/OFF** position phases 2, 3, 8, 9, 10, 11.

C. **BITE** and Maintenance Test

(Ref. Fig. 046)

(Ref. Fig. 047)



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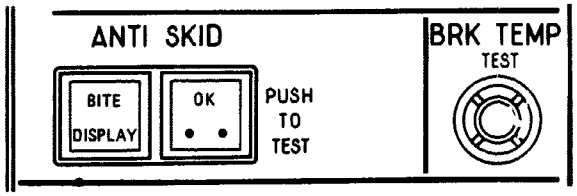
Brake Indicating - Logic
Figure 045



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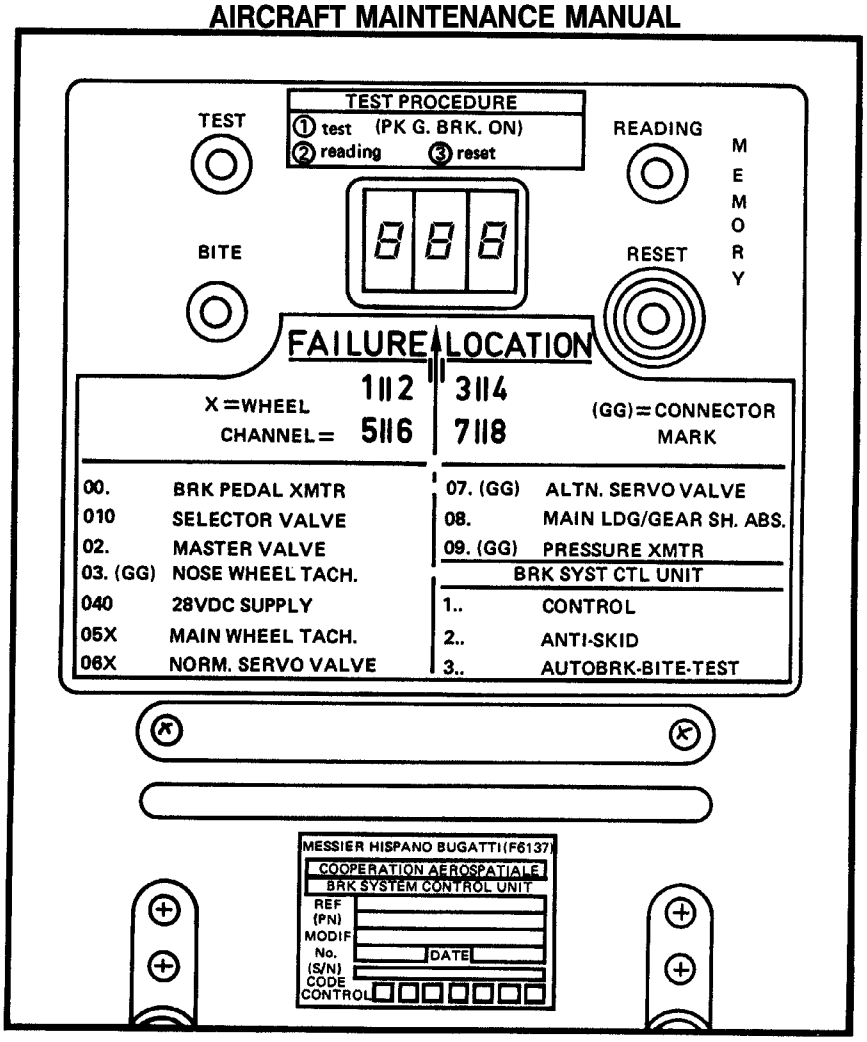
ANTI SKID Test Panel
Figure 046



BSCU CONFIGURATIONS

		Ø WHEELS	
		Ø 46	Ø 49
BRAKE TYPES	MHB (STELL AND CARBON)	CODE 461	CODE 491
	BENDIX AND LORAL	CODE 462	CODE 492

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Brake System Control Unit
Figure 047

R **ON A/C 101-200,

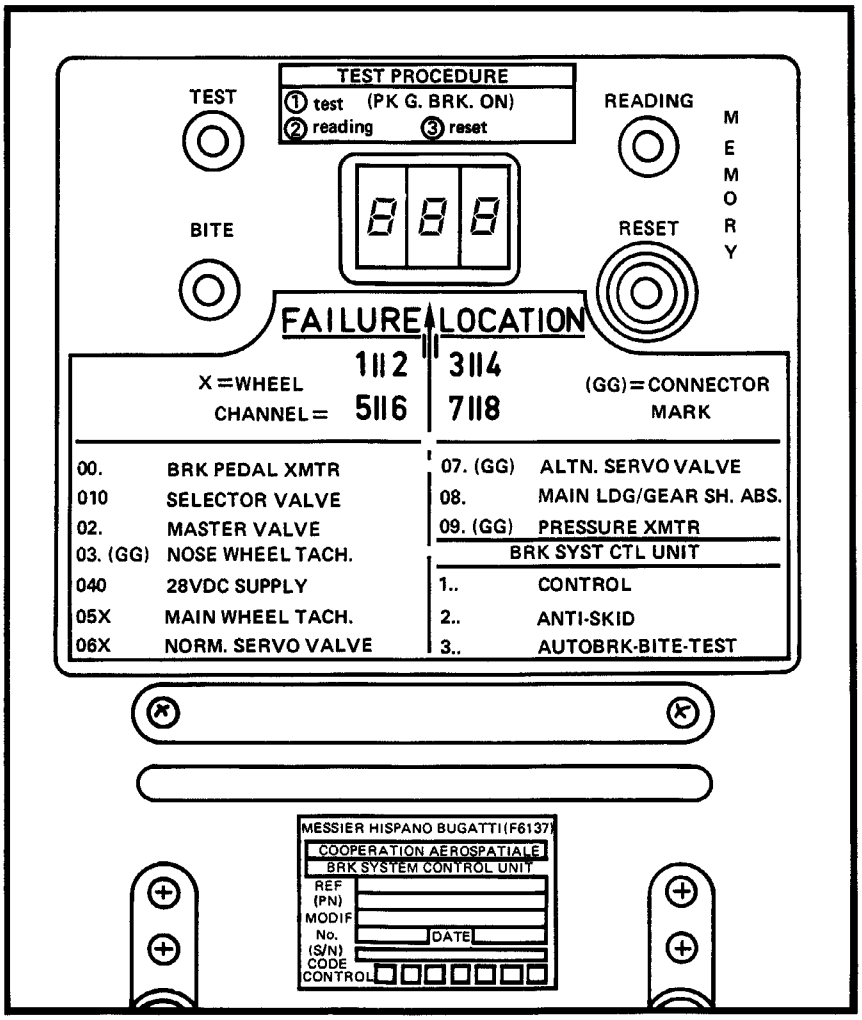
R Post SB 32-2102 For A/C 101-200,

(Ref. Fig. 048)

R **ON A/C ALL

(1)The BITE functions are achieved by a microprocessor which processes the information supplied by the various braking control and regulation electronic components and circuits.
The microprocessor is supplied from a 115V/400 Hz busbar.
The BITE circuits detect and memorize the primary failures. Non volatile memories are provided. On the ground with the aircraft at a halt, the only failure memorized is that of the autobrake accelerometer ; this enables all the maintenance operations to be performed without false warnings occurring.
When failure of a braking system component is detected, the BITE DISPLAY legend on the maintenance panel comes on. The coded failure is indicated on the face of the brake system control unit by a 3-digit numeric display. The failure corresponding to the code is identified on a placard affixed on the face of the control unit. A READING MEMORY pushbutton switch enables the codes corresponding to any other faulty components to be called up. A MEMORY/RESET pushbutton switch serves to clear the memories. A test pushbutton switch serves to check the condition of all the braking system components. The TEST pushbutton is also used each time a component is replaced.
The following table specifies the components monitored per flight phase.
At the end of the test if no failures have been detected, BSCU configuration is displayed for 5 seconds.

(2)Maintenance test and indicating on lateral panel
An OK/PUSH TO TEST pushbutton switch serves to perform a general system test. This test is identical to that initiated via the TEST pushbutton switch on the face of the brake system control unit. Frequencies are applied to the nose and main gear tachometer circuits. During the test the 8 REL symbols (green horizontal bars) are displayed on the right ECAM display unit and the pushbutton switch OK legend is on. In the event of failure, the OK legend remains off and BITE DISPLAY memorized fault annunciator comes on.
A protective circuit interrupts the test after 10 seconds in the event of OK pushbutton switch failure (jamming of pushbutton switch in pressed in position).
If OK pushbutton switch is released before the 10 seconds have elapsed, the OK legend goes off and 8 REL symbols disappear as soon as pushbutton switch is released.



BSCU CONFIGURATIONS

		Ø WHEELS	
		Ø 46	Ø 49
BRAKE TYPES	MHB STEEL	CODE 461	CODE 491
	BENDIX AND MHB CARBON	CODE 462	CODE 492

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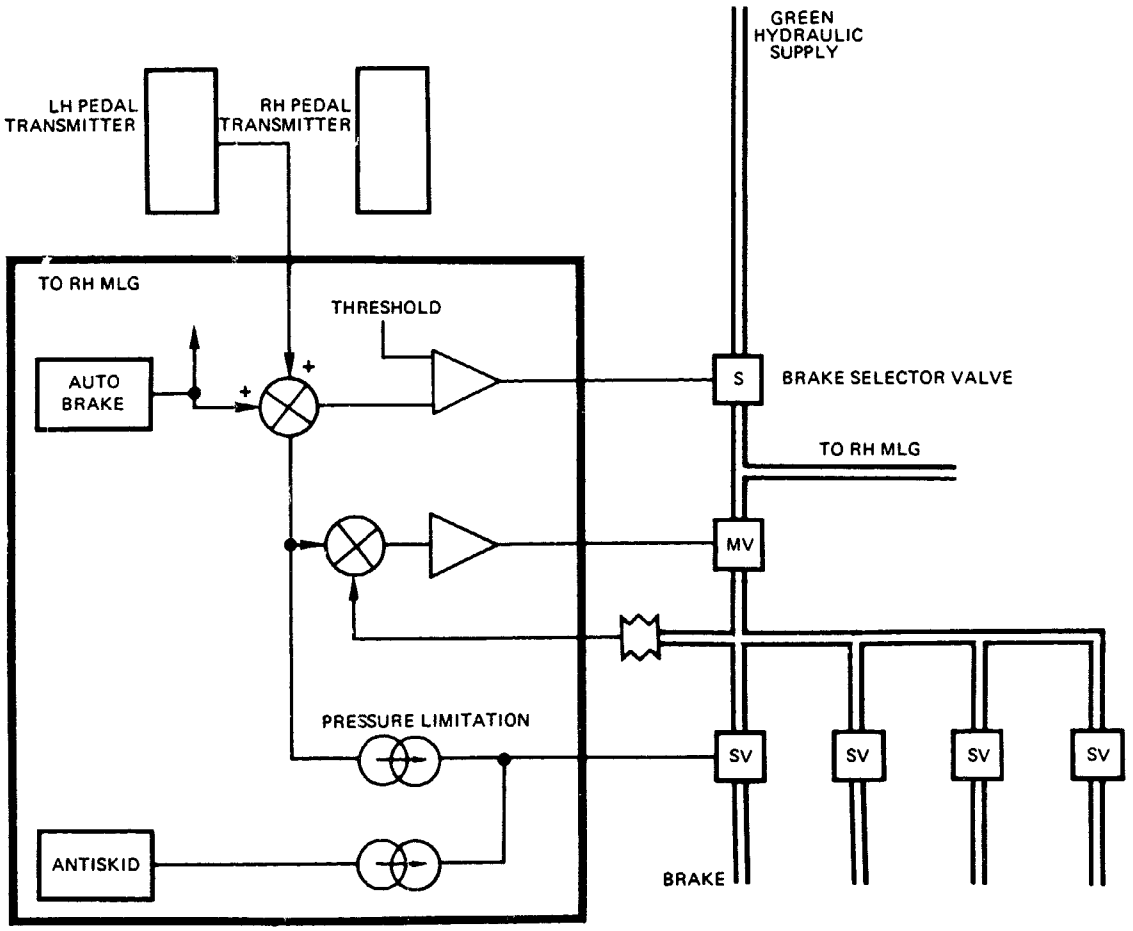
R Brake System Control Unit
Figure 048

PHASE	FLIGHT	GROUND		TEST ON MAINT PANEL	IN-FLGHT BRAKING
		HALT	ROLL		
START	2 shock abs. extended + Right gear downlocked + 7 main while SPD < 15 m/s	1 shock abs. compressed + Parking brake + 10s delay	2 shock abs. compressed + 2 A/C speeds > 15 m/s	1 shock abs. compressed + Test push-button pressed + parking brake + 10s delay	Landing gear control lever in UP position + 2s delay
END	Shock abs. compressed or right gear unlocked	Parking brake released	2 A/C speeds > 40 m/s or at least 2 speeds < 15 m/s	Test push-button released or after 10 s	R gear not downlocked or 3s after selecting UP
INTERRUPT	Pedal pressed down	Pedal pressed down or test PB/SW pressed	Pedal pressed down	Pedal pressed down : 3 potentiometers to u > 2,8V	Pedal pressed down
TACHOMETERS			Frequency > 400 Hz	Frequency > 400 Hz	
NORMAL SERVOVALVES	i>33 mA	26<i<33 mA	26<i<33 mA	i>33 mA	20<i<26 mA (first part)
ALTERNATE SERVOVALVES	i1=i2>16 mA	i1=i2<16 mA	i1=i2<16 mA	i1=i2>16 mA	
PEDAL POS. TRANSMITTER UNIT	1.5V<U<3.08V	1.5V<U<3.08V	1.5V<U<3.08V	1.5<U<3.08V	
MASTER VALVES	i>15 mA	i>15 mA	i>15 mA	i>15 mA	10<i<14 mA + test by comparison of press. transduc.
PRESSURE TRANSDUCERS	0.5<U<1.4V	0.5<U<1.4V	0.5<U<1.4V	0.5<U<1.4V	1.4V<U<2.25 (first part)
SHOCK ABSORBERS		2 identical infos on ground			2 contacts in flight position

	PHASE	FLIGHT	GROUND		TEST ON MAINT PANEL	IN-FLGHT BRAKING
			HALT	ROLL		
	SELECTOR VALVE					Energized 1s after start at end of inflight braking SV de-energized after 1.5s (2PT at U<14V)
	RELEASE	U<7.5V	U>7.5V	U>7.5V	U<7.5V Release indicate on ECAM	
BRAKE	BRK FAIL	U<7.5V if 1 release missing	U>7.5V			No warning if 1.4>UPT>2.25V
CONTROL UNIT	NOSE AND MAIN WHEEL F/V CONVERTERS	U<5V	U<5V	1.2V<U<4.4V	NOSE WHL 2.7<U<3.3V MAIN WHL 1.9<U<2.9V	
	ACCLEROMETER	U<4V	Test OK	U<4V		
	AUTO BRAKE	Test OK	Test OK		Test OK	
	BITE	Test OK	Test OK			
	STRAPS				Identical information	

D. Auto Brake
(1)Control and indicating (Ref. Fig. 049)
(2)Integration
When selected, the auto brake is substituted for the Normal braking control described in 32-42-00 paragraph 3.A.
The auto brake uses the Green hydraulic system, the selector valve and the two master valves to measure the pressure, function of the aircraft deceleration.
(3)Principle
(a)Operation
On the basis of the aircraft deceleration, the auto brake generates the regulation signals necessary to maintain the reference deceleration rate whenever the condition of the runway permits. The aircraft deceleration signal delivered by an accelerometer in the brake control unit is compared to the reference deceleration rate selected via the **AUTO BRK** illuminated pushbutton switches.
The two master valves deliver the pressure required to maintain the deceleration rate.
The auto brake system serves to :
- obtain the optimal deceleration rate compatible with the length of the runway.
- reduce pilot workload during landing
- improve passenger comfort.

Prior to landing the pilot selects, via the illuminated pushbutton switches located on the center instrument panel, the deceleration rate, he judges to be adapted to the runway. The pilot can disengage the auto brake system by depressing the pedals or by again pressing the illuminated pushbutton switch.
Prior to takeoff the pilot can select the **MAX** mode.
(b)Indicating
Each illuminated pushbutton switch is divided into two parts. The lower part **"ON"** legend illuminates in blue to indicate that the pushbutton switch has been selected and that the system is armed. On the upper part a green bar comes on when 80% of the corresponding deceleration rate is attained (**LO** and **MED** pushbutton switches) or when the full pressure command is applied (**MAX** pushbutton switch). In this latter case the blue **ON** legend goes off.



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Auto Brake system - Integration
Figure 049

(4)Auto brake logic
(Ref. Fig. 050)
The auto brake logic is grouped on a single printed circuit assembly and uses the microprocessor serving for the **BITE**.
The auto brake logic circuit receives the following signals :
- 3 signals supplied by the illuminated pushbutton switches located on the center instrument panel :
  2 deceleration rates (**LO** = 1.7 m/s² and **MED** = 3 m/s²)
  MAX = full pressure
- 2 ground spoilers extended signals. Both signals must be present to enable automatic braking
- the anti skid system operational signal tapped from the **BRK FAIL** warning light
- landing gear control lever in **UP** position
- pedals depressed
- Green system low pressure.

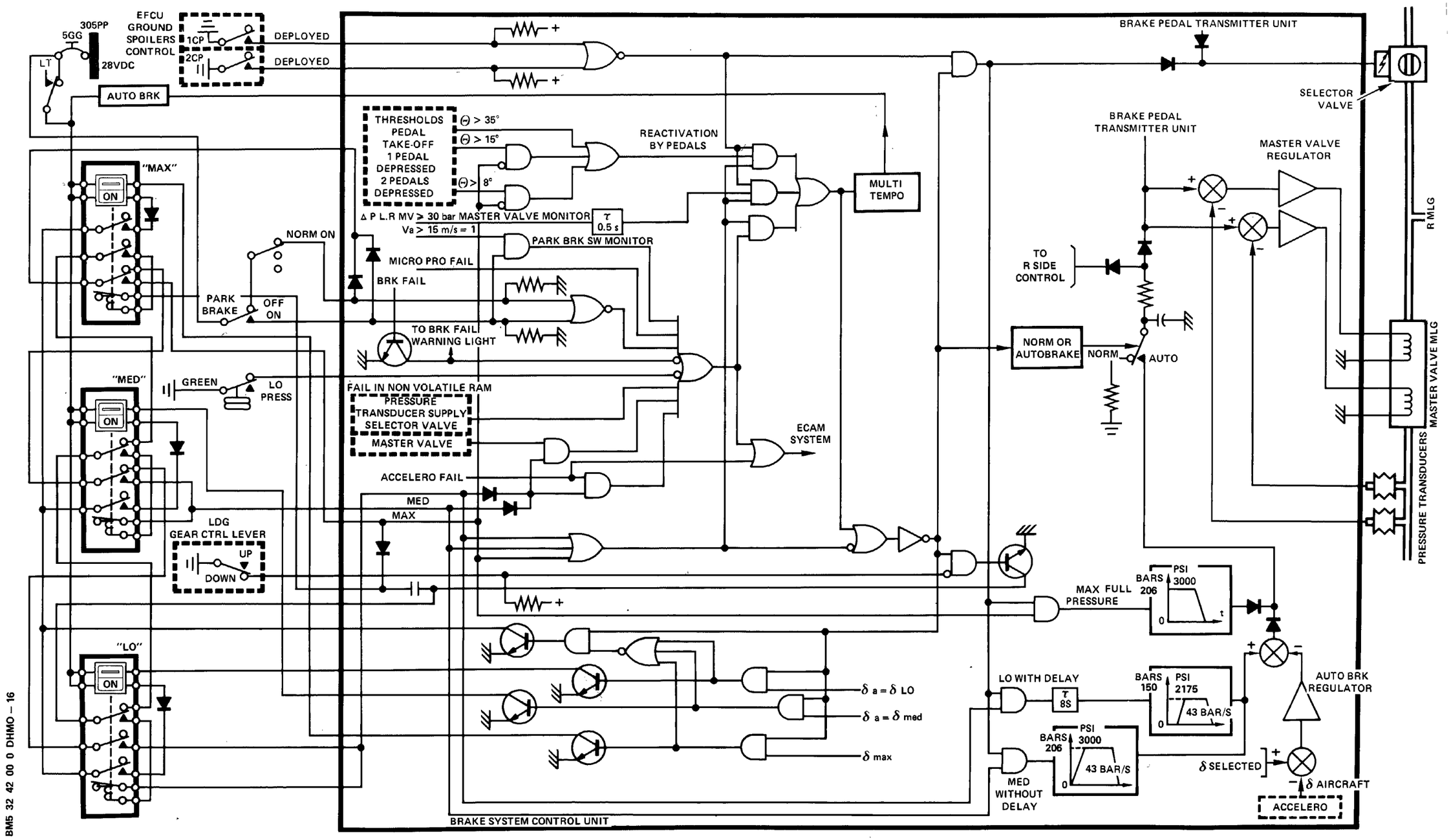
The auto brake logic supplies :
- the selector valve energization command
- the braking enable command to the two master valves
- the following information to the illuminated pushbutton switches :
  - system armed
  - 80% of the deceleration rate attained (**LO** and **MED**) or full pressure applied (**MAX**)
- arming impossible signal to the right **ECAM** display unit.

(5)Operation at landing
(a)**MED** and **LO** modes :
1 The selector valve is energized by the ground spoilers extension command.
2 Application of the brakes is possible if the ground spoilers extension signal is present.
Braking is delayed 8 seconds (**LO** mode only) and is applied with a pressure gradient of 43 bars/s.
3 The pressure delivered by the master valves gradually increases t = 3s approx. and the maximum value is limited depending on the selected deceleration rate. The reference deceleration rate is attained progressively.
4 The two master valves receive identical commands from the deceleration control circuit.
5 The aircraft deceleration rate is compared to the reference value. The resulting error signal is converted into a pressure variation tending to slave the aircraft deceleration rate to the programmed value.

(b)**MAX** mode
1 The ground spoilers extension command controls :
- energization of the selector valve
- immediate delivery of maximum pressure to the eight brakes.

2 There is no programmed deceleration rate.
3 This mode serves for acceleration-stop (Ref. paragraph (6))

(6)Utilization of auto brake system in the event of acceleration-stop :
The system can also be used as provision for an acceleration-stop, by selecting **MAX** mode via the corresponding pushbutton switch.



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Auto Brake
Figure 050

In MAX mode, automatic braking occurs at the same time as the ground spoilers extension command.
The ground spoilers extension command is automatically generated when the following conditions are met :
- Ground spoilers preselected) or reverse selected
- Both engines throttled down) on 1 engine
- Main gear rear wheel speed > 85 Kts.

In this mode, maximum pressure is immediately applied to the brakes with no time delay. The green bar on the upper part of the pushbutton switch comes on as soon as maximum pressure is applied irrespective of the aircraft deceleration rate.
During gear retraction the MAX pushbutton switch goes off without the AUTO BRK light coming on. In the event of a go-around followed by landing gear retraction, the selected pushbutton switch goes off when the landing gear control lever is placed in UP position.

(7)Manual take-over (cut-off of automatic braking)

(a)LO and MED modes

The pilot can take-over braking control in two ways :
- by applying a fairly high load to one pedal
- by simultaneous application of a moderate load to both pedals.

Cut-off of automatic braking occurs gradually accompanied by flashing of the AUTO BRK light on the center instrument panel for 10 s (at a frequency of 2 Hz).
Placing the landing gear control lever in UP position or again pressing mode selection pushbutton switch already selected disengages auto brake system without causing the AUTO BRK light to come on.
In case the selected pushbutton is pressed again to disengage the auto-brake system, automatic braking is only re-initiated after selection of a new deceleration rate if the ground spoilers extension signal is still being generated.
Automatic braking is totally and immediately cut off as soon as a ground spoilers retraction signal is applied (signal possibly resulting from a go-around command). Braking is inhibited but the system remains armed. Automatic braking is re-initiated as soon as a new extension signal is generated (LO or MED mode).

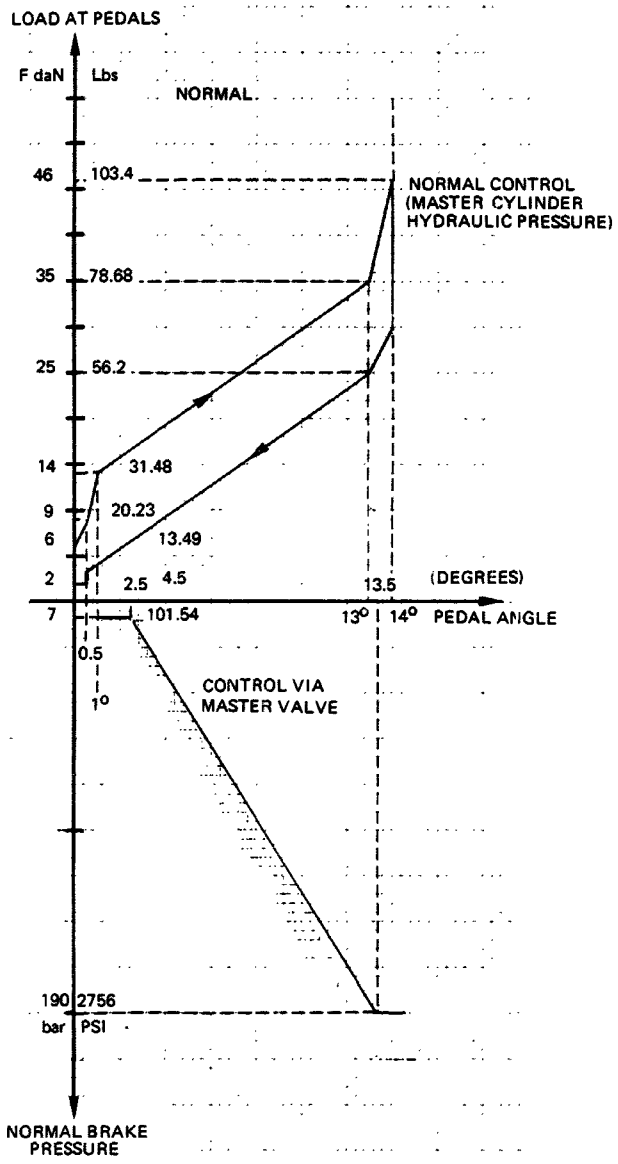
(b)In MAX mode, the load required at the pedals to cut off automatic braking is greater than that required in LO mode or MED mode.

(8)Disengagement in the event of failure.

The system cannot be armed or disengages in the following cases :
- arming impossible
  . Green low pressure
  . BRK FAIL
  . accelerometer failure
- disengagement :
  . pressure differential greater than 30 bars (435 psi) at output of the two master valves during 0.5 second.

In the above cases the AUTO BRK light flashes for 10 s.
When, prior to arming, a system fault is detected a logic signal is sent to the right ECAM display unit.

E. Pedal Artificial Feel (Ref. Fig. 051)



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Pedal Artifical Feel - Diagram
Figure 051

Artificial feel at the pedals is identical in the Normal and Alternate braking modes. Artificial feel is provided by the Alternate system master cylinders (master cylinder spring + pressure in the master cylinder).
Pedal load/angle versus pressure delivered to the brakes in Normal mode is given in the diagram.
Graph 1 shows the respective influence of the master cylinder spring alone and the combined action of the spring and the pressure in the master cylinder.
Graph 2 shows the pressure delivered in Normal mode depending on whether control is achieved via the master valves or the brake servovalves (Alternate electrical control).

R **WARNING : CHECK THAT THE LANDING GEAR GROUND SAFETIES INCLUDING WHEEL CHOCKS ARE IN POSITION.**

BEFORE APPLYING OR RELIEVING HYDRAULIC SYSTEM PRESSURE, MAKE CERTAIN THAT THE TRAVEL RANGES OF THE CONTROL SURFACES ARE CLEAR.

BEFORE PRESSURIZING HYDRAULIC SYSTEMS, CHECK THAT ALL CONTROLS ARE SET TO CORRESPOND WITH THE ACTUAL POSITION OF THE SERVICES THEY OPERATE.

BEFORE POWER IS SUPPLIED TO THE AIRCRAFT, MAKE CERTAIN THAT ELECTRICAL CIRCUITS UPON WHICH WORK IS IN PROGRESS ARE ISOLATED.

BEFORE PRESSURIZING HYDRAULIC SYSTEMS, MAKE CERTAIN THAT HYDRAULIC SYSTEM UNDER MAINTENANCE HAS BEEN ISOLATED.

1. Bleeding of Normal Brake System from the Flight Compartment

A. Reason for the Job

(1)Bleeding of Normal brake system following pipe replacement or removal/installation of system components located upstream of the servovalves.

B. Equipment and Materials

ITEM	DESIGNATION
(1)	Wheel Chocks
(2)	Warning Notice
Referenced Procedures	
- 24-41-00, P. Block 301	AC External Power Control
- 29-21-00, P. Block 301	Green Auxiliary System Pressurization

C. Procedure

(1)Job set-up

(a)Make certain that the following circuit breakers are closed :

PANEL	SERVICE	IDENT.	LOCATION
133VU	HYDRAULIC/BRAKES SYSTEM/CTL UNIT/ CTL &/WARN	5GG	333/T56
133VU	HYDRAULIC/BRAKES SYSTEM/CTL UNIT/ LAND/RECOVERY/SUPPLY	98GG	333/T55
133VU	HYDRAULIC/BRAKES SYSTEM/CTL UNIT/ NORM	4GG	331/V55
133VU	HYDRAULIC/BRAKES SYSTEM/CTL UNIT/ SUPPLY	42GG	331/V56
133VU	HYDRAULIC/BRAKES SYSTEM/CTL UNIT/ NORM	2GG	332/U55
133VU	HYDRAULIC/BRAKES SYSTEM/CTL UNIT/	41GG	332/U56

PANEL	SERVICE	IDENT.	LOCATION
	SUPPLY		
133VU	HYDRAULIC/AUTO BRK	95GG	335/R57
133VU	HYDRAULIC/L/G PROX DET/& RELAYS	1GB	331/V52
	SYS2/FLT/GND		
133VU	HYDRAULIC/L/G PROX DET/& RELAYS	2GB	332/U51
	SYS1/RELAYS &/RETRACT/CTL		
133VU	HYDRAULIC/L/G PROX DET/& RELAYS	3GB	332/U53
	SYS1/GEAR DN &/CTR PNL/POS IND		
133VU	HYDRAULIC/L/G PROX DET/& REALYS	83GB	331/V51
	SYS2/GEAR DOWN &/OVHD PNL/POS IND		
133VU	HYDRAULIC/L/G PROX DET/& RELAYS	119GB	332/U52
	SYS1/FLT/GND		

(b)Make certain that wheel chocks are in position.
(c)On panel 4VU
- make certain that landing gear control lever is in **DOWN** position and prohibit its operation by displaying a warning notice.

(d)On panel 9VU
- make certain that **PARKING BRAKE** control handle is in Normal (released) position.

(e)Between First Officer's and Third Occupant's seats
- make certain that landing gear Free Fall control handle is in Normal position.

(f)Energize the aircraft electrical network (Ref. 24-41-00, P. Block 301). Make certain that electronics racks ventilation is correct.
(g)Pressurize Green auxiliary system by means of Green electric pumps (Ref. 29-21-00, P. Block 301).
(h)On panel 401VU
- make certain that **BRK/ANTI SKID** switch 96GG is in **NORM/ON** position.

(2)Bleeding
(a)Depress pedals and hold depressed
(b)Push wheel button on **ECAM** control panel and perform **ANTI SKID** test on maintenance panel (471VU)
1 On R **ECAM** display unit
- Check that the eight **REL** symbols come on then go off after 10 seconds.

2 Repeat this test 10 times.
(c)Release the pedals.

(3)Close-up
(a)Cut off power supply to Green electric pumps (Ref. 29-21-00, P. Block 301).
(b)De-energize the aircraft electrical network (Ref. 24-41-00, P. Block 301).
(c)Remove all ground handling and maintenance equipment, standard and special tools, together with ground power and replenishing equipment all access equipment and miscellaneous items.

2. Bleeding of Normal Brake System at Brake Units

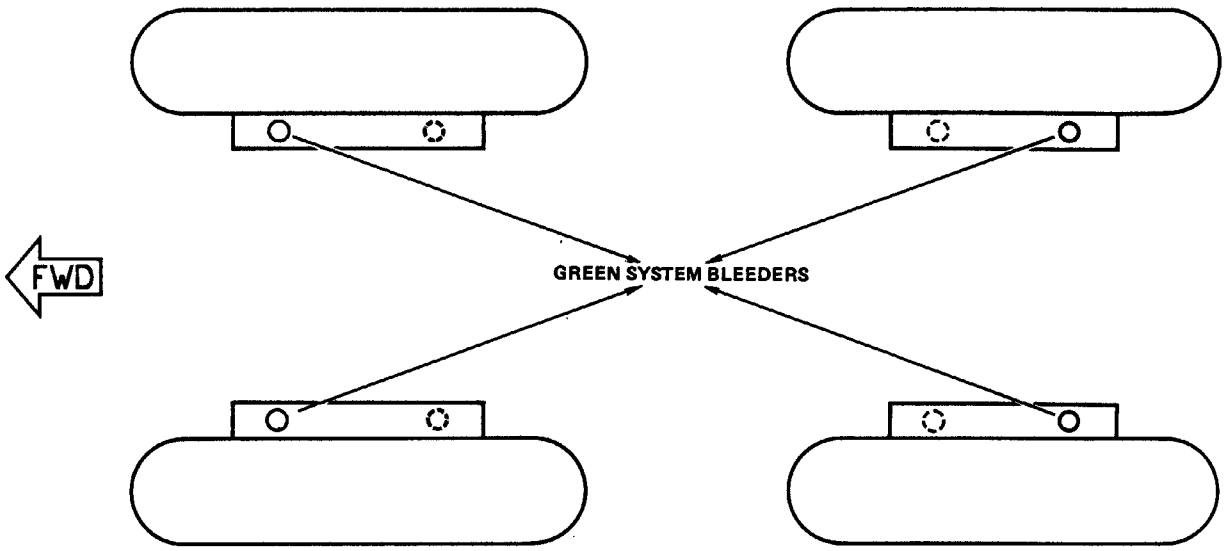
A. Reason for the Job
(1)Bleeding of Normal brake system following all maintenance operations downstream of the servovalves

B. Equipment and Materials

ITEM	DESIGNATION
(1)	Wheel Chocks
(2)	Vinyl Hose
(3)	Hydraulic Fluid Container
(4)	Warning Notice
(5)	Circuit Breaker Safety Clips
(6)Material No. 02-002	Hydraulic Fluids (Ref. 20-31-00)
Referenced Procedures	
- 12-12-29, P. Block 1	Hydraulics
- 24-41-00, P. Block 301	AC External Power Control
- 29-21-00, P. Block 301	Green Auxiliary Power
- 32-42-00, P. Block 501	Normal Braking
- 32-42-36, P. Block 301	Safety Valves

C. Procedure

(1)Job Set-Up
(a)Make certain that all circuit breakers associated with the Normal braking system (GG) are closed.
(b)Position wheel chocks.
(c)On panel 4VU
- make certain that landing gear control lever is in **DOWN** position and prohibit its operation by displaying a warning notice.
(d)On panel 9VU
- make certain that **PARKING BRAKE** control handle is in **NORMAL** (released) position.
(e)Energize the aircraft electrical network (Ref. 24-41-00, P. Block 301). Make certain that electronics racks ventilation is correct.
(f)Pressurize Green auxiliary system by means of Green electric pumps (Ref. 29-21-00, P. Block 301).
(g)Remove bleed screw plug from an aft wheel brake unit and connect a vinyl hose with one end in a container of hydraulic fluid No.02-002 to bleed screw.
NOTE : Check that tools and equipment as well as unions are clean.
(h)In the event of hydraulic line rupture, make certain that associated safety valve is restored to normal operating condition (Ref. 32-42-36, P. Block 301).
(Ref. Fig. 301)
(2)Bleeding
(a)Moderately depress Captain's or First Officer's pedal corresponding to brake to be bled, so as to deliver a pressure of approx. 10 bars (150 psi) to brake.



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R Normal Braking System Bleeding
Figure 301

(b)Slowly loosen bleed screw to obtain a steady flow of fluid. Allow fluid to flow until it is completely free of air bubbles.
(c)Tighten bleed screw while maintaining pressure at brake.
(d)Release brake pedal.
(e)If there is still air in the system repeat above operation until all air is expelled.
(f)Disconnect vinyl hose, wipe all traces of fluid from bleed screw, install blanking plug and TORQUE bleed screw to 0.68 m.daN (60 lbf.in.).
(g)Bleed the other brakes concerned as above.

(3)Test

R Perform a normal braking operational test (Ref. 32-42-00, P. Block 501).
NOTE : Check bleed screws for leakage during and upon completion of tests

(4)Close-Up
(a)Remove hydraulic fluid container
(b)Make certain that working area is clean and clear of tools and miscellaneous items of equipment.
(c)Shut down Green system electric pumps (Ref. 29-21-00, P. Block 301).
(d)Replenish hydraulic reservoirs if necessary (Ref. 12-12-29, P. Block 1).
(e)De-energize the aircraft electrical network (Ref. 24-41-00, P. Block 301).
(f)Remove warning notice.
(g)Remove all ground handling and maintenance equipment, standard and special tools, together with ground power and replenishing equipment, all access equipment, and miscellaneous items.

WARNING : CHECK THAT THE GROUND SAFETIES INCLUDING WHEEL CHOCK ARE IN POSITION.

1. Equipment and Materials

ITEM	DESIGNATION
A.	Wheel Chocks
B.	Circuit Breaker Safety Clips
C.	Protective Caps
D.	Warning Notices
E.	Safety Barriers
F.	Lockwire
Referenced Procedures	
- 24-41-00, P. Block 301	AC External Power Control
- 32-42-00, P. Block 501	Normal Braking
- 32-42-47, P. Block 401	Brake Pedal Position Trasmitter Unit
- 32-43-00, P. Block 501	Alternate Braking with Anti Skid
- 32-43-12, P. Block 401	Master Cylinder - BRK CTL

2. Procedure

A. Job Set-Up
(1)Make certain that wheel chocks are in position.
(2)On panel 4VU
- make certain that landing gear control lever is in **DOWN** position and prohibit its operation by displaying a warning notice.

(3)On panel 9VU
- make certain that **PARKING BRAKE** control handle is in Normal (released) position.

(4)Between First Officer's and Third Occupant's seats
- make certain that landing gear Free Fall extension control handle is in Normal position.

(5)Make certain that the following circuit breakers are closed:

PANEL	SERVICE	IDENT.	LOCATION
133VU	HYDRAULIC/L/G PROX DET/& RELAYS SYS2/FLT/GND	1GB	331/V52
133VU	HYDRAULIC/L/G PROX DET/& RELAYS SYS1/RELAYS &/RETRACT/CTL	2GB	332/U51
133VU	HYDRAULIC/L/G PROX DET/& RELAYS SYS1/GEAR DN &/CTR PNL/POS IND	3GB	332/U53
133VU	HYDRAULIC/L/G PROX DET/& RELAYS SYS2/GEAR DOWN &/OVHD PNL/POS IND	83GB	331/V51
133VU	HYDRAULIC/L/G PROX DET/& RELAYS SYS1/FLT/GND	119GB	332/U52
133VU	HYDRAULIC/BRAKES SYSTEM/CTL UNIT/ NORM	2GG	332/U55
133VU	HYDRAULIC/BRAKES SYSTEM/CTL UNIT/ NORM	4GG	331/V55

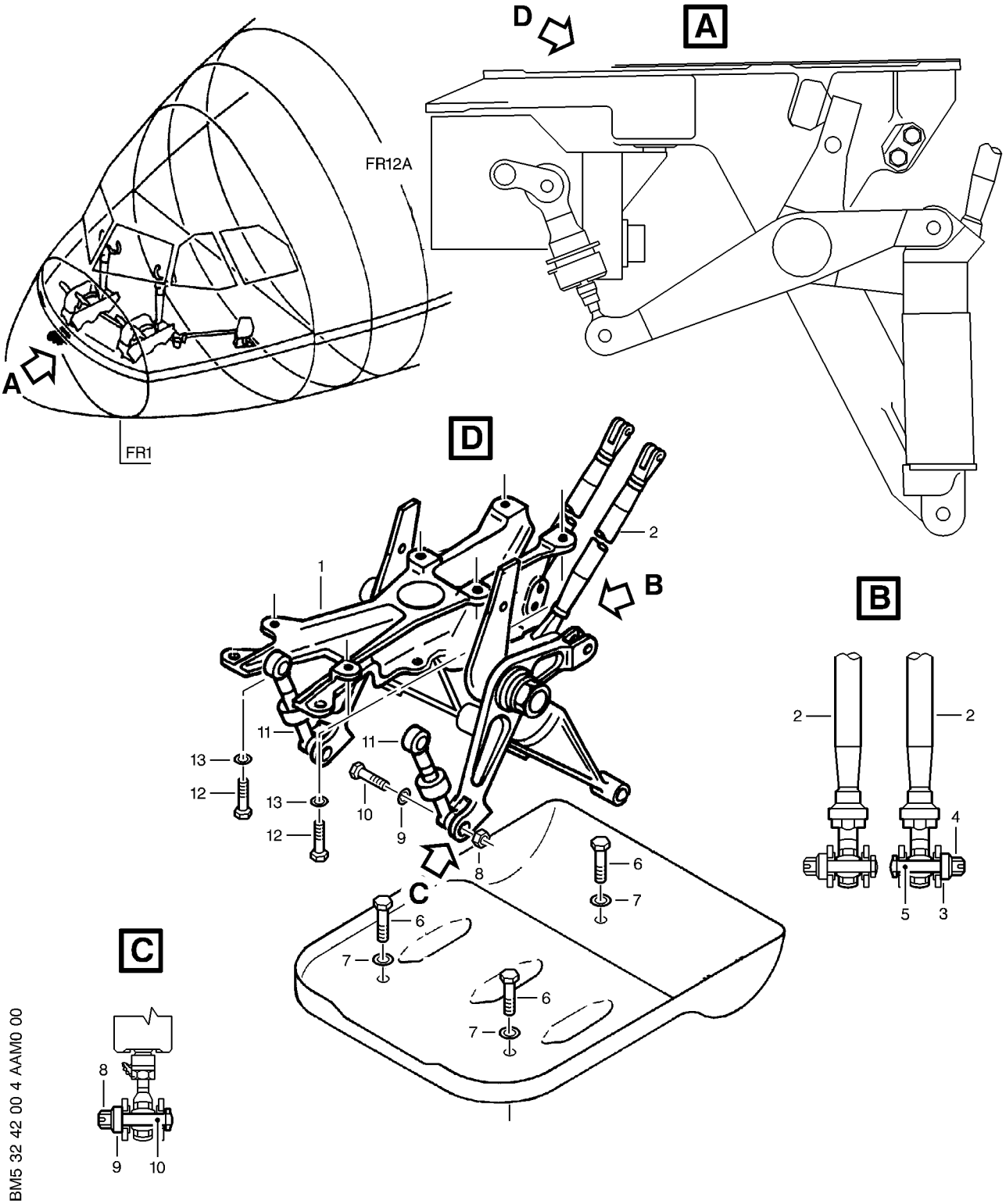
PANEL	SERVICE	IDENT.	LOCATION
133VU	HYDRAULIC/BRAKES SYSTEM/CTL UNIT/ CTL &/WARN	5GG	333/T56
133VU	HYDRAULIC/BRAKES SYSTEM/CTL UNIT/ SUPPLY	41GG	332/U56
133VU	HYDRAULIC/BRAKES SYSTEM/CTL UNIT/ SUPPLY	42GG	331/V56
133VU	HYDRAULIC/AUTO BRK	95GG	335/R57
133VU	HYDRAULIC/BRAKES SYSTEM/CTL UNIT/ LAND/RECOVERY/SUPPLY	98GG	333/T55

(6)Open access door 211PZ.

B. Removal
(Ref. Fig. 401)
(1)Remove RH and LH master cylinders (Ref. 32-43-12, P. Block 401).
NOTE : Do not disconnect hydraulic lines and support master cylinders to avoid damaging pipes.
(2)Disconnect rods (2) from brace assy (1).
(a)Remove cotter pins, nuts (4), washers (3) and bolts (5).
NOTE : Rods remain on aircraft.
(3)Remove brake pedal position transmitter unit (Ref. 32-42-47, P. Block 401).
(4)Remove spring rods (11).
(a)Remove cotter pins, remove nuts (8), washers (9) and bolts (10).
(5)Remove bolts (6) and washers (7) and remove channel.
(6)Unsafety and remove bolts (12) and washers (13).
(7)Remove brace assy (1).

C. Preparation of Replacement Component
(1)Depreserve the replacement brace assy and check for correct condition.

D. Installation
(1)Position brace assy (1) on structure.
(Ref. Fig. 401)
(a)Install bolts (12) and washers (13) and TORQUE bolts to between 0.8 and 0.9 m.daN (71 and 80 lbf.in.).
Safety bolts (12) with lockwire.
(2)Install spring rods (11).
(a)Install bolts (10), washers (9) and nuts (8). TORQUE nuts to between 0.5 and 0.6 m.daN (44 and 53 lbf.in.).
(b)Safety nuts (8) with cotter pins.
(3)Install brake pedal position transmitter unit (Ref. 32-42-47, P. Block 401).
(4)Connect rods (2) to brace assy.
(a)Install bolts (5), washers (3) and nuts (4).
(b)TORQUE nuts (4) to between 0.5 and 0.6 m.daN (44 and 53 lbf.in.) and safety with cotter pins.
(5)Install RH and LH master cylinders (Ref. 32-43-12, P. Block 401).



Brace Assy
Figure 401

(6)Install washers (7) and bolts (6).
(7)Tighten bolts (6).

E. Test
(1)Carry out a test for correct operation of pedals (Ref. 32-42-00, P. Block 501).
(2)Carry out a Normal braking operational test (Ref. 32-42-00, P. Block 501).
(3)Carry out an operational test of Alternate braking with and without anti-skid (Ref. 32-43-00, P. Block 501).

F. Close-Up
(1)De-energize the aircraft electrical network and disconnect electrical ground power unit (Ref. 24-41-00, P. Block 301).
(2)Remove warning notices.
(3)Close access door 211PZ.
(4)Make certain that working area is clean and clear of tools and miscellaneous items of equipment.

R

WARNING : CHECK THAT THE LANDING GEAR GROUND SAFETIES INCLUDING WHEEL CHOCKS ARE IN POSITION. BEFORE APPLYING OR RELIEVING HYDRAULIC SYSTEM PRESSURE MAKE CERTAIN THAT THE TRAVEL RANGES OF THE CONTROL SURFACES ARE CLEAR. BEFORE PRESSSURIZING HYDRAULIC SYSTEMS, CHECK THAT ALL CONTROLS ARE SET TO CORRESPOND WITH THE ACTUAL POSITION OF THE SERVICES THEY OPERATE.
BEFORE POWER IS SUPPLIED TO THE AIRCRAFT, MAKE CERTAIN THAT ELECTRICAL CIRCUITS UPON WHICH WORK IS IN PROGRESS ARE ISOLATED.
BEFORE PRESSURIZING HYDRAULIC SYSTEMS, MAKE CERTAIN THAT HYDRAULIC SYSTEM UNDER MAINTENANCE HAS BEEN ISOLATED.

1. Adjustment of Normal Braking Mechanical Control

A. Reasons for the Job
(1)Adjustment of brake pedal transmitter unit control.
(2)Adjustment of brake control interconnecting bellcrank assembly.
Equipment and Materials

ITEM	DESIGNATION
(1)35M5M01080000 or 35M5M01080001	Adjuster Unit - Brake Pedal Transmitter
(2)98A32401000000	Pin-Rigging, Braking Control
(3)98A32401500000	Pin-Rigging, Braking Control Interconnecting Rod - Section 11
(4)	Wheel Chocks
(5)	Warning Notices
Referenced Procedures	
- 24-41-00, P. Block 301	AC External Power Control
- 29-21-00, P. Block 301	Green Auxiliary Power
- 29-10-00, P. Block 301	Main Hydraulic Power - Pressurization/ Depressurization
- 29-14-00, P. Block 301	Hydraulic Reservoir Pressurizing System

B. Procedure
(1)Job set-up
(a)Make certain that wheel chocks are in position.
(b)Open, safety and tag the following circuit breakers :

PANEL	SERVICE	IDENT.	LOCATION
133VU	HYDRAULIC/BRAKES SYSTEM/CTL UNIT/ NORM SUPPLY	2GG	332/U55
133VU	HYDRAULIC/BRAKES SYSTEM/CTL UNIT/ NORM SUPPLY	4GG	331/V55
133VU	HYDRAULIC/BRAKES SYSTEM/CTL UNIT/ NORM SUPPLY	41GG	332/U56
133VU	HYDRAULIC/BRAKES SYSTEM/CTL UNIT/	42GG	331/V56

PANEL	SERVICE	IDENT.	LOCATION
133VU	NORM SUPPLY HYDRAULIC/BRAKES SYSTEM/CTL UNIT/ CTL & WARN	5GG	333/T56

(c)On panel 4VU
- make certain that landing gear control lever is in **DOWN** position and prohibit its operation by displaying a warning notice.

(d)Between First Officer's and Third Occupant's seats
- make certain that landing gear Free Fall extension control handle is in Normal position.

(e)Make certain that **PARKING BRAKE** control handle is in Normal (released) position.

(f)Depressurize Green hydraulic system (Ref. 29-10-00, P. Block 301) and prohibit its pressurization by displaying a warning notice :
- on Green hydraulic system ground connectors
- on panel 427VU to prohibit operation of Green electric pumps (**ELEC PUMPS** pushbutton switch).

(g)Depressurize Yellow hydraulic system (Ref. 29-10-00, P. Block 301) and prohibit its pressurization by displaying a warning notice :
- on Yellow hydraulic system ground connectors
- on panel 427VU to prohibit energization of Yellow Power transfer unit (right **PTU** pushbutton switch).

(h)Depressurize Green and Yellow hydraulic reservoirs (Ref. 29-14-00, P. Block 301) and prohibit their pressurization by displaying a warning notice :
- on panel 429VU to prohibit **APU** starting
- on reservoir pressurization connectors.

(j)Display a warning notice on pedals to prohibit their operation.

(k)At STA1446 (FR20), open access doors 811 and 132AZ.

(l)Disconnect electrical connector 11GG-A from brake pedal transmitter unit and install protective cap on connector.

(m)Connect adjuster unit 35M5M01080000 or 35M5M01080001 to brake pedal transmitter unit.

C. Adjustment (Ref. Fig. 501)

(1)Adjust brake pedal transmitter unit overtravel spring rods (1).

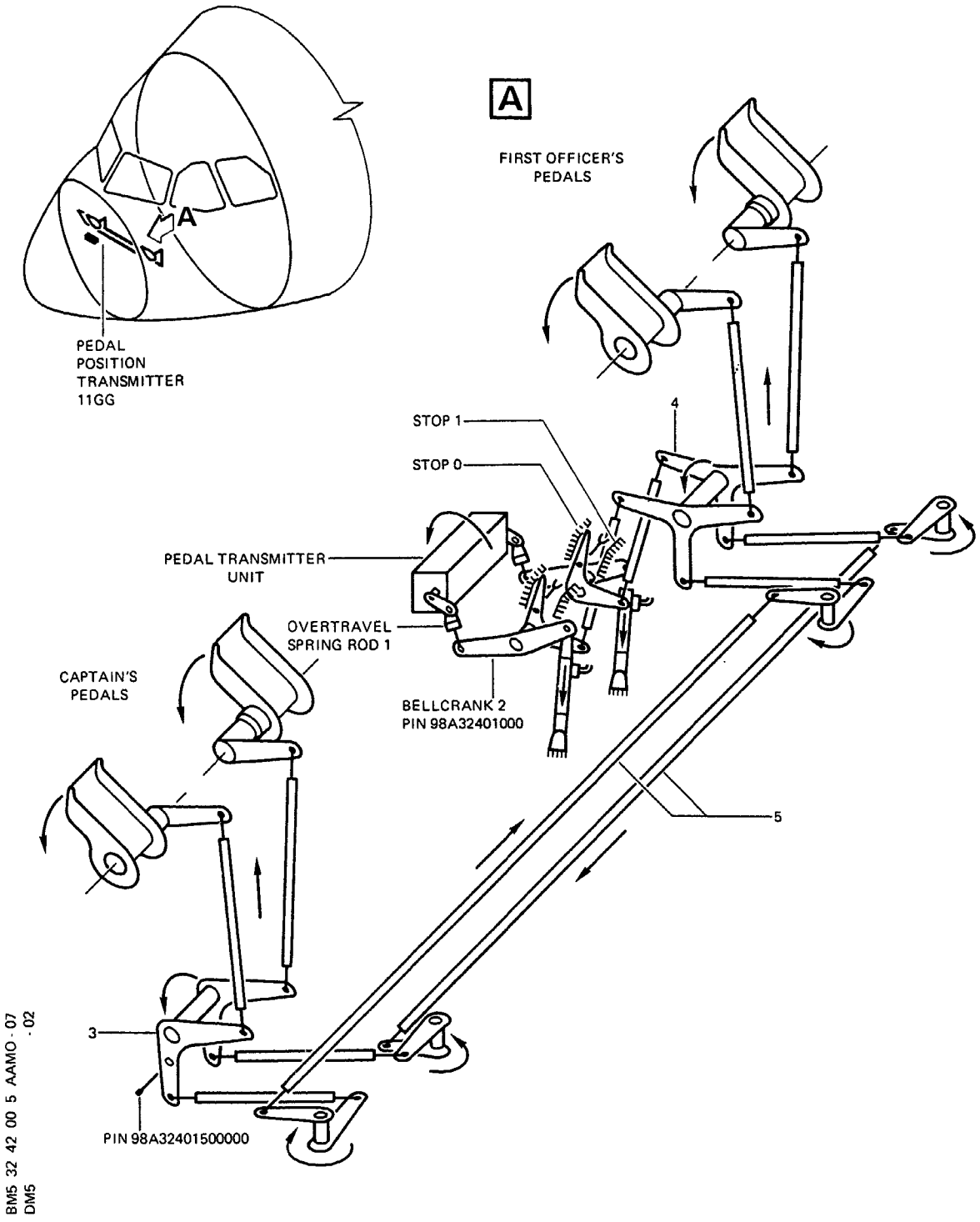
NOTE : The spring rods shall be adjusted separately with other rod either disconnected or in neutral position.

(a)Install rigging pin 98A32401000000 in bellcrank (2) of channel to be adjusted (zero braking position : stop 0).

(b)Pre-adjust overtravel spring rod to its theoretical length L = 95 mm (3.743 in.).
Tighten but do not safety the adjustable end fitting.

(c)Install pre-adjusted overtravel spring rod. Check that brake pedal transmitter unit output voltage is 2.36 ±0.1 V.

(d)If this output voltage is not obtained :
- disconnect spring rod from bellcrank and adjust spring rod center-to-center distance until output voltage of 2.36±0.1 V is obtained in configuration described above.



Mechanical Control
Figure 501

NOTE : Adjustment of center-to-center distance shall be achieved by successive half rotations ; each half rotation corresponding to a voltage variation of 0.19 V.

(e)Tighten and safety adjustable end fitting when required voltage output is obtained.

(f)Remove pin 98A32401000000 and place bellcrank (2) in stop 1 (maximum braking) position.

(g)In this configuration check that

1 Brake pedal transmitter unit output voltage is equal to 15±0.2 V.

2 Overtravel spring rod is slightly compressed confirming that transmitter unit is in maximum voltage stop position.

(h)Return bellcrank to zero braking position (stop 0) and check that transmitter unit output voltage is still 2.36±0.1 V.

(j)Repeat above procedure for other channel.

(k)Disconnect and remove transmitter adjuster unit 35M5M01080000 or 35M5M01080001. Remove protective cap from transmitter electrical connector and connect transmitter to aircraft wiring.

(2)Adjustment of interconnecting bellcrank assembly

(a)Install rigging pin 98A32401000000 in bellcrank (2) of channel to be adjusted.

NOTE : All fixed rods connecting Captain's and First Officer's pedals to bellcranks (3) and (4) are preset prior to installation. No adjustment of the interconnecting linkage is required.

(b)Check that rigging pin 98A32401500000 can be readily inserted in Captain's bellcrank (3) corresponding to channel to be adjusted.

- If not, adjust length of rod (5) until rigging pin can be readily inserted.

Tighten and safety the two adjustable end fittings.

(c)Remove rigging pins 98A32401000000 and 98A32401500000.

(d)Repeat above procedure for other channel.

(e)Remove safety clips and tags and close circuit breakers associated with circuit GG (BRAKES).

D. Test

(1)Energize the aircraft electrical network (Ref. 24-41-00, P. Block 301).

- Make certain that electronics racks ventilation is correct.

(2)Pressurize Green hydraulic system using Green electric pumps (Ref. 29-21-00, P. Block 301).

(3)On panel 401VU

- Place BRK/A/SKID switch in NORM/ON position.

(4)Depress Captain's or First Officer's left pedal. On right main landing gear check that all pistons are in de-activated position (pistons retracted).

On left main landing gear check that the pistons associated with Green system are in activated position (pistons extended).

(5)Release left pedal and depress Captain's or First Officer's right pedal. On left main landing gear check that all pistons are in de-activated position (pistons retracted).

On right main landing gear check that the pistons associated with Green system are in activated position (pistons extended).

(6)Shut down Green electric pumps (Ref. 29-21-00, P. Block 301).

E. Close-Up
(1)De-energize the aircraft electrical network (Ref. 24-41-00, P. Block 301).
(2)Remove warning notices from pedals.
(3)Close access doors 811 and 132AZ.
(4)Make certain that working area is clean and clear of tools and miscellaneous items of equipment.

2. Operational Test

A. Reasons for the Job
(1)Annunciator light test.
(2)Test of **ANTI SKID** system from maintenance panel.
(3)Test of **ANTI SKID** system in "**LAND RECOVERY**" configuration.
(4)Normal braking operational test.
R (5)**BITE** test of **BSCU**.

B. Equipment and Materials

ITEM	DESIGNATION
(1)	Wheel Chocks
(2)	Warning Notice
Referenced Procedures	
- 12-12-29, P. Block 1	Hydraulics
- 24-41-00, P. Block 301	AC External Power Control
- 29-21-00, P. Block 301	Green Auxiliary Power
- 29-23-00, P. Block 301	Yellow Auxiliary Power (Power Transfer Unit)

C. Procedure
(1)Job set-up
(a)Make certain that wheel chocks are in position.
(b)Make certain that circuit breakers associated with braking system (circuit **GG**) and gear extension/retraction system (circuit **GB**) are closed.
(c)On panel **4VU**
- make certain that landing gear control lever is in **DOWN** position and prohibit its operation by displaying a warning notice.
(d)Between First Officer's and Third Occupant's seats
- make certain that landing gear Free Fall extension control handle is in Normal position.
(e)Make certain that **PARKING BRAKE** control handle is in Normal (released) position.
(f)On panel **401VU**
- make certain that **BRK/A/SKID** switch is in **NORM/ON** position.
(g)Energize the aircraft electrical network (Ref. 24-41-00, P. Block 301). Make certain that electronics racks ventilation is correct.

D. Test
(1)Annunciator light test
(a)Open, safety and tag the following circuit breakers :

PANEL	SERVICE	IDENT.	LOCATION
133VU	HYDRAULIC/BRAKES SYSTEM/CTL UNIT/ NORM SUPPLY	2GG	332/U55
133VU	HYDRAULIC/BRAKES SYSTEM/CTL UNIT/ NORM SUPPLY	4GG	331/V55
133VU	HYDRAULIC/BRAKES SYSTEM/CTL UNIT/ NORM SUPPLY	41GG	332/U56

PANEL	SERVICE	IDENT.	LOCATION
133VU	HYDRAULIC/BRAKES SYSTEM/CTL UNIT/ NORM SUPPLY	42GG	331/V56
133VU	HYDRAULIC/BRAKES SYSTEM/CTL UNIT/ CTL & WARN	5GG	333/T56
R 133VU	HYDRAULIC/AUTO BRK	95GG	335/R57

(b)In right electronics rack 90VU, shelf 94VU
- disconnect brake system control unit 29GG.

(c)Remove safety clip and tag and close circuit breaker 5GG. On panel 132VU, make certain that circuit breakers corresponding to LIGHTING - INTERIOR LT - ANN LT TEST MAN (LP) and LIGHTING - MAIN PANEL - ANN AND MFA (WB) are closed.

(d)Test

ACTION	RESULT
1. On ANN LT section of panel 436VU	On panel 401VU
A. Place ANN LT switch in TEST position.	- AUTO BRK and BRK FAIL warning lights come on amber - on MAX, MED, LO pushbutton switches green bars and blue ON legends come on.
B. Place ANN LT switch in BRT position.	- the five above mentioned legends go off.
2. On maintenance panel 472VU	
A. Place ANN LT switch in TEST position.	On ANTI SKID section of panel 471VU BITE DISPLAY and OK legends come on.
B. Place ANN LT switch in READ position (memory read).	BITE DISPLAY and OK legends go off.
C. Place ANN LT switch in OFF position.	BITE DISPLAY and OK legends remain off.

(e)Close-up
1 Open, safety and tag circuit breaker 5GG, panel 133VU.
2 In electronics rack 90VU, on shelf 94VU
- connect brake system control unit 29GG.
3 Remove safety clips and tags and close circuit breakers associated
R with braking system (circuit GG, panel 133VU, lines 331, 332, 333 and
R 335).

(2)Test of ANTI SKID system from maintenance panel.

ACTION	RESULT
1. On maintenance panel 472VU - place ANN LT switch in READ POSITION.	
2. On panel 11VU, on ECAM control panel. - press WHEEL pushbutton switch.	On panel 4VU, on right ECAM display unit - check that WHEEL page is displayed
3. On ANTI SKID section of maintenance panel 471VU - press OK pushbutton switch for more than 10 seconds.	On panel 471VU - OK legend comes on and goes off after 5 s. On panel 4VU, on right ECAM display unit - The 8 brake release symbols appear a few seconds after the OK pushbutton has been pressed. They disappear 10 seconds after this OK pushbutton has been released.

NOTE 1 : A protective circuit interrupts the test after 10 seconds in the event of OK pushbutton switch failure (jamming of pushbutton switch in pressed position)
If OK pushbutton switch is released before the 10 seconds have elapsed, the OK legend goes off. The 8 brake release symbols disappear 10 seconds after the OK pushbutton switch has been released.

(3)Test of ANTI SKID System in "LAND RECOVERY" configuration.

(a)Open, safety and tag the following circuit breakers :
2GG, 4GG, 41GG, 42GG on panel 133VU, line 331 and line 332.

ACTION	RESULT
1. On panel 424VU - press "LAND RECOVERY" pushbutton switch 18XC	On pushbutton switch "ON" Legend comes on
2. Perform "ANTI SKID" test from maintenance panel as per paragraph D (2).	

(b)Perform a functional test of maximum pressure delivered to brakes (Ref. Functional Test, paragraph 3.D.(3).

(c)Close-up

1 Remove safety clips and tags and close circuit breakers previously opened.

(4)Normal braking operational test

(a)Pressurize Green hydraulic system using Green electric pumps (Ref. 29-21-00, P. Block 301).
(b)Pressurize Yellow hydraulic system using Green/Yellow transfer unit (Ref. 29-23-00, P. Block 301).

ACTION	RESULT
1. On panel 401VU - Place **BRK/A/SKID** switch in **NORM/ON** position.	On panel 4VU, on right **ECAM** display unit - no brake release symbols are displayed.
2. Fully depress Captain's pedals and hold depressed.	Check that : - pistons associated with Green system are extended (braking effective). - no pressure is indicated on triple indicator **71GG**.
3. On panel 401VU - Place **BRK/A/SKID** switch in **ALTN/ON** position.	Check that : - pistons associated with Green system are retracted and pistons associated to Yellow system are extended (Green/Yellow transfer). - triple indicator **71GG** indicates Yellow pressure delivered to brakes.
- Place **BRK/A/SKID** switch in **NORM/ON** position.	- triple indicator **71GG** indicates zero pressure.
4. Release Captain's pedals.	
5. On panel 401VU - press **LO** pushbutton switch.	- **LO** blue **ON** legend comes on and pushbutton switch remains pressed in (latched).
- press **MED** pushbutton switch.	- **MED** blue **ON** legend comes on and pushbutton switch remains pressed in. - **LO** blue **ON** legend goes off and pushbutton switch returns to normal position (out).
- press **MAX** pushbutton switch.	- **MAX** blue **ON** legend comes on and pushbutton switch remains pressed in. - **MED** blue **ON** legend goes off and pushbutton switch returns to normal position (out).
- place **BRK/A/SKID** switch in	**AUTO BRK** warning light flashes amber

ACTION	RESULT
ALTN/ON position.	for more than 10 s at a frequency of 2 Hz.

- place **BRK/A/SKID** switch in **NORM/ON** position.

(5)**BITE** test of **BSCU**
(a)On panel **9VU**
- place **PARKING BRAKE** control handle in **ON** (applied) position.

(b)In avionics compartment, perfom a **BITE** test of **BSCU** :
- on the face of the **BSCU**, press **TEST** pushbutton switch and hold pressed throughout duration of test.
  The test is entirely automatic. During the test the coded-failures are displayed successively on 3-digit numeric display.
- at the end of the test, if no failure has been detected, **BSCU** configuration is displayed for 5 seconds.
  NOTE : If a failure is detected, the code corresponding to the faulty component is displayed.
  The test is then interrupted and can be continued by pressing again **TEST** pushbutton switch.

(c)On panel **9VU**
- place **PARKING BRAKE** control handle in normal (released) position.

(d)When test is finished, release **TEST** pushbutton switch.
- apply parking brake for a few seconds (less than 10 sec).
- on **R ECAM** display unit, on **WHEEL** page, check that 8 brake release lights are off after release.

E. Close-Up
(1)Shut down Green/Yellow transfer unit.
(2)Shut down Green electric pumps.
(3)De-energize aircraft electrical network.
(4)Remove warning notices.

3. Functional Test

A. Reasons for the Job
(1)Annunciator light test (Ref. Operational Test, paragraph D.).
(2)Test of brake selector valve and automatic selector switchover via BRK/A/SKID switch.
(3)Test of maximum pressure delivered to brakes.
(4)Anti skid system test on all eight brakes.
(5)Autobrake deceleration rate arming test.
(6)Test of autobrake disengagement or arming interdiction upon fault detection.
(7)Autobrake manual take-over test.
(8)Test of autobrake system in MAX mode and manual take-over.
(9)Not applicable.

R **ON A/C 101-200,

(10)Test of in-flight wheel braking.
(11)Nose gear tachometer test.

B. Equipment and Materials

ITEM	DESIGNATION
(1)	Cart - Ground Power Supply and Preliminary Testing 150 l/min. (39.6 US GPM) Hydraulic
(2)860135953100001	Test Set - Landing Gear Safety Relay Control Simulator
(3)97A32402018000	Pressure Gage - Brake Block Hydraulic Pressure
(4)	Wheel Chocks
(5)	Warning Notice
(6)	Safety Barriers
(7)	Green Pressure Simulator Switch
(8)35M5M01040001	Simulator - Wheel Speed
R (9)860135958100001	2 Wheel Generators Driving Device
or	
R 860135958100003	
R and	
R 98D32403003000	
Referenced Procedures	
- 12-12-29, P. Block 1	Hydraulics
- 24-41-00, P. Block 301	AC External Power Control
- 29-10-00, P. Block 301	Main Hydraulic Power - Pressurization/ Depressurization
- 29-21-00, P. Block 301	Green Auxilary Power
- 29-23-00, P. Block 301	Yellow Auxiliary Power (Power Transfer Unit)
- 32-00-00, P. Block 501	Landing Gear
- 32-12-11, P. Block 301	Main Gear Main Door - (Ground Door(s) Opening)
- 32-42-00, P. Block 301	Normal Braking

C. Procedure
(1)Job set-up
(a)Make certain that wheel chocks are in position.

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(10)Test of in-flight wheel braking.
(11)Nose gear tachometer test.

B. Equipment and Materials

ITEM	DESIGNATION
(1)	Cart - Ground Power Supply and Peliminary Testing 150 l/min. (39.6 US GPM) Hydraulic
(2)860135953100001	Test Set - Landing Gear Safety Relay Control Simulator
(3)97A32402018000	Pressure Gage - Brake Block Hydraulic Pressure
(4)	Wheel Chocks
(5)	Warning Notice
(6)	Safety Barriers
(7)	Green Pressure Simulator Switch
(8)35M5M01040001	Simulator - Wheel Speed
(9)860135958100001 or 860135958100004 and 98D32403004000	2 Wheel Generators Driving Device
Referenced Procedures	
- 12-12-29, P. Block 1	Hydraulics
- 24-41-00, P. Block 301	AC External Power Control
- 29-10-00, P. Block 301	Main Hydraulic Power - Pressurization/ Depressurization
- 29-21-00, P. Block 301	Green Auxiliary Power
- 29-23-00, P. Block 301	Yellow Auxiliary Power (Power Transfer Unit)
- 32-00-00, P. Block 501	Landing Gear
- 32-12-11, P. Block 301	Main Gear Main Door - (Ground Door(s) Opening)
- 32-42-00, P. Block 301	Normal Braking
- 27-60-00, P. Block 301	Spoilers and Speedbrakes

C. Procedure
(1)Job set-up
(a)Make certain that wheel chocks are in position.

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(b)Switch on ECAM system and make certain that circuit breakers

associated with braking system (circuit GG, panel 133VU, lines 331, 332 and 333) and gear extension/retraction system (circuit GB, panel 133VU, lines 331 and 332) are closed.

(c) On panel 4VU
- make certain that landing gear control lever is in DOWN position and prohibit its operation by displaying a warning notice.

(d) Between First Officer's and Third Occupant's seats
- make certain that landing gear Free Fall extension control handle is in Normal position.

(e) Make certain that PARKING BRAKE control handle is in Normal (released) position.

(f) On panel 401VU
- make certain that BRK/A/SKID switch is in NORM/ON position.

(g) Install a pressure gage downstream of each Normal braking servovalve (brake unit bleeder) (Ref. Functional Test, para. D. (2), (3), (4) and (7).

(h) Energize aircraft electrical network (Ref. 24-41-00, P. Block 301).
- Make certain that electronics racks ventilation is correct.

(j) Connect hydraulic ground power cart to Green hydraulic system (Ref. 29-10-00, P. Block 301) or pressurize hydraulic system using Green electric pump (Ref. 29-21-00, P. Block 301) and G/Y PTU (Ref. 29-23-00, P. Block 301)

(k) Check that in Green system accumulator nitrogen pressure is 100 bars (1450 psi) for an ambient temperature of 20°C.

(l) Check hydraulic fluid level in Green hydraulic reservoir and replenish is necessary (Ref. 12-12-29, P. Block 1).

(m) On panel 11VU
- on ECAM control panel, press WHEEL pushbutton switch to display the WHEEL page on right ECAM display unit.

NOTE : Landing gear relay simulator test set is not required for test in Para. 3. D. (1), (2), (3), (4), (7) and (8) if this test is to be performed with aircraft resting on its wheels.

(n) Connect main landing gear safety relay control simulator test set (Ref. 32-00-00, P. Block 501).
On simulator test set make certain that switches 64GB and 63GB are in GROUND position and that switch 66GB is in DOWNLOCKED position switches 8GA, 9GA, 11GA and 12GA in flight position and switch 3XG in ground position

D. Test
(1)Annunciator light test (Ref. Operational Test, paragraph D.).
NOTE : To carry out this test the electrical ground power unit only is required.
(2)Test of brake selector valve and automatic selector switchover via BRK/A/SKID switch.
(a)Pressurize Green hydraulic system (Ref. 29-10-00, P. Block 301).
(b)Pressurize Yellow hydraulic system using Green/Yellow transfer unit (Ref. 29-23-00, P. Block 301).
(c)Test

ACTION	RESULT
1. On panel 401VU - place BRK/A/SKID switch in NORM/ON position.	No indication.
2. Depress Captain's pedals sufficiently to obtain pressure at the brakes (readings to be taken on test pressure gage) and hold depressed.	On panel 4VU, on triple indicator 71GG - Yellow pressure delivered to brakes is zero.
3. On panel 401VU - place BRK/A/SKID switch in ALTN/ON position.	- triple indicator 71GG indicates increase in Yellow pressure delivered to brakes. - downstream of Normal servovalves, pressure gages display a pressure drop.
4. Place BRK/A/SKID switch in ALTN/OFF position and press INHIB/OVRD pushbutton switch (inhibition override) on ECAM maintenance panel 470VU.	On triple indicator 71GG - yellow pressure delivered to the brakes is maintained. On left ECAM display unit, following message is displayed. BRAKES (amber) ANTI SKID OFF (amber) MAX BRK PRESS... 1000 PSI (blue) AUTO BRK FAULT (amber). On CAPT and F/O main instrument panels 3VU and 5VU - MASTER CAUTION lights come on.
Place BRK/A/SKID switch in NORM/ON position and release Captain's pedals.	On left ECAM display unit - message above disappears On triple indicator 71GG - yellow pressure delivered to brakes is zero.
Reset MASTER CAUTION lights	- MASTER CAUTION lights go off.

(d)Shut down Green/Yellow transfer unit (Ref. 29-23-00, P. Block 301).

(3)Test of maximum pressure delivered to brakes.

(a)On panel 4VU

- make certain that landing gear control lever is in **DOWN** position and prohibit its operation by displaying a warning notice.

(b)Make certain that Green hydraulic system is pressurized (Ref. 29-10-00, P. Block 301).

(c)Test

ACTION	RESULT
1. Fully depress Captain's pedals.	Maximum pressure delivered to brakes is 190 + 10 - 10 bars (2757 + 0 - 145 psi). No indication or message on ECAM display units.
2. Release Captain's pedals.	Pressure gages indicate zero pressure.

(4)Anti skid system test on all eight wheels.

(a)On panel 4VU

- make certain that landing gear control lever is in **DOWN** position and prohibit its operation by displaying a warning notice.

(b)Make certain that Green hydraulic system is pressurized (Ref. 29-10-00, P. Block 301).

(c)On panel 11VU, on ECAM control panel,

- press **WHEEL** pushbutton switch to display **WHEEL** page on right ECAM display unit.

(d)Make certain that **ANN LT** switch on panel 472VU is in **READ** position.

(e)Test

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(d)Shut down Green/Yellow transfer unit (Ref. 29-23-00, P. Block 301).

(3)Test of maximum pressure delivered to brakes.

(a)On panel 4VU

- make certain that landing gear control lever is in **DOWN** position and prohibit its operation by displaying a warning notice.

(b)Make certain that Green hydraulic system is pressurized (Ref. 29-10-00, P. Block 301).

(c)Test

ACTION	RESULT
R 1. Fully depress Captain's pedals.	R Maximum pressure delivered to brakes is 175 + 10 - 15 bars (2538 + 145 - 217 psi). No indication or message on ECAM

ACTION	RESULT
	display units.
2. Release Captain's pedals.	Pressure gages indicate zero pressure.

(4)Anti skid system test on all eight wheels.
(a)On panel 4VU
- make certain that landing gear control lever is in **DOWN** position and prohibit its operation by displaying a warning notice.

(b)Make certain that Green hydraulic system is pressurized (Ref. 29-10-00, P. Block 301).
(c)On panel 11VU, on **ECAM** control panel,
- press **WHEEL** pushbutton switch to display **WHEEL** page on right **ECAM** display unit.

(d)Test

R **ON A/C ALL

ACTION	RESULT
1. Fully depress Captain pedals	Maximum pressure is delivered to the main gear brakes. On right **ECAM** display unit - No brake release symbol appears.
2. On **ANTI SKID** section of panel 471VU - momentarily press **PUSH TO TEST/OK** pushbutton switch	On pressure gages in line downstream of the right and left gear Normal servovalves - pressure drops and approaches zero. On right **ECAM** display unit - 8 brakes release symbols are displayed for 10 seconds approx.
3.	When 8 brake release symbols disappear on right **ECAM** display unit, - On pressure gages, pressure increases and remains steady at maximum value.
4. Release Captain pedals	- Green pressure drops to zero.
5. Place **ANN LT** switch in **OFF** position	- Annunciator lights go off.

(5)Autobrake deceleration rate arming test
(a)On landing gear safety relay control simulator test set

- make certain that switches 64GB and 63GB are in GROUND position and that switch 66GB is in DOWNLOCKED position.

(b)Make certain that Green hydraulic system is pressurized.

(c)Test

ACTION	RESULT
1. On panel 401VU - press MAX pushbutton switch.	- Blue ON legend comes on. Pushbutton switch remains pressed in (latched).
- again press MAX pushbutton switch.	- Blue ON legend goes off. - Pushbutton switch returns to normal position (out).

(6)Test of autobrake disengagement or arming interdiction upon fault detection.

NOTE : Make certain that green and yellow hydraulic systems are depressurized.

(a)Open left main gear door (Ref. 32-12-11, P. Block 301).
On pressure manifold 1060 located in hydraulics compartment (zone 147), disconnect electrical connector from pressure switch 30WW.

(b)On landing gear safety relay control simulator test set
- place switches 65GB, 63GB, 55GB, 82GB, 64GB, 62GB in FLIGHT position and switches 67GB, 81GB, 40GB, 79GB, 66GB, 80GB in DOWN LOCKED position (FLIGHT simulation).
- place switches 8GA, 9GA, 11GA and 12GA in FLIGHT position and switch 3GX in GROUND position.

(c)On panel 401VU
- make certain that BRK/A/SKID switch is in NORM/ON position.

(d)Test

ACTION	RESULT
1. On panel 4VU - place landing gear control lever in Neutral position.	
2. On panel 401VU	- blue ON legend comes on.
A. Press MAX pushbutton switch.	
B. Place BRK/A/SKID switch in ALTN/ON position.	- ON legend goes off. - amber AUTO BRK warning light flashes for 10 seconds and goes off. On CAPT and F/O main instrument panels 3VU and 5VU - MASTER CAUTION lights come on. On left ECAM display unit - following message is displayed

ACTION	RESULT
	BRAKES AUTO BRK FAULT Single chime sounds.
C. On panel 401VU - again press MAX pushbutton switch.	On panel 401VU - pushbutton switch ON legend does not remain on (autobrake is not armed). - AUTO BRK warning light flashes for 10 seconds and goes off.
D. Place BRK/A/SKID switch in NORM/ON position.	On CAPT and F/O main instrument panels 3VU and 5VU - MASTER CAUTION lights go off
WARNING : BEFORE CARRYING OUT THE FOLLOWING PROCEDURE, MAKE CERTAIN THAT GREEN HYDRAULIC SYSTEM IS DEPRESSURIZED AND THAT LANDING GEAR GROUND SAFETIES ARE IN POSITION. DISPLAY A WARNING NOTICE PROHIBITING PRESSURIZATION OF GREEN HYDRAULIC SYSTEM.	
E. Select a deceleration rate (LO, MED or MAX).	- on selected pushbutton switch, blue ON legend comes on.
3. On panel 4VU - place landing gear control lever in UP position.	- on selected pushbutton switch ON legend goes off. Pushbutton switch returns to normal position (out). - BRAKE FAIL warning light comes on on panel 401VU. On CAPT and F/O main instrument panels 3VU and 5VU - MASTER CAUTION lights comes on - on left ECAM display unit the following message is displayed. BRAKES BRK/ANTI/SKID FAULT BRK/ANTI/SKID ALTN ON AUTO BRAKE FAULT
- place landing gear control lever in Neutral position (initial position).	No change.
4. On panel 401VU - place BRK/A/SKID switch in ALTN/ON position then in NORM/ON position.	- associated warnings and ECAM messages are no longer displayed.

ACTION	RESULT
- select a deceleration rate.	- on selected pushbutton switch blue **ON** legend comes on.
5. In zone 147, reconnect electrical connector to pressure switch 30WW.	- on selected pushbutton switch, **ON** legend goes off. - amber **AUTO BRK** warning light flashes for 10 seconds.

(e)Close left main gear door (Ref. 32-12-11, P. Block 301).

(7)Autobrake manual take-over test

WARNING : CHECK THAT LANDING GEAR GROUND SAFETIES INCLUDING WHEEL CHOCKS ARE IN POSITION.
BEFORE APPLYING OR RELIEVING HYDRAULIC SYSTEM PRESSURE MAKE CERTAIN THAT THE TRAVEL RANGES OF THE CONTROL SURFACE ARE CLEAR.
BEFORE PRESSURIZING HYDRAULIC SYSTEMS, CHECK THAT ALL CONTROLS ARE SET TO CORRESPOND WITH THE ACTUAL POSITION OF THE SERVICES THEY OPERATE.
BEFORE PROCEEDING WITH MAINTENANCE WORK ON OR NEAR MECHANICAL FLIGHT CONTROLS OR PRIMARY FLIGHT CONTROL SURFACES, LANDING GEARS, ASSOCIATED DOORS OR ANY MOVING COMPONENT, MAKE CERTAIN THAT GROUND SAFETIES AND/OR WARNING NOTICES ARE IN CORRECT POSITION TO PREVENT INADVERTENT OPERATION OF CONTROLS.

(a)Perform a ground spoiler extension :

1 Pressurize green hydraulic system using electric pumps.

2 Make certain that the following circuit breakers are closed :

PANEL	SERVICE	IDENT.	LOCATION
133VU	EFCU NORM SUPPLY SPLR 1 & 4	71CP	V62/331
133VU	EFCU NORM SUPPLY SPLR 6 & 7	10CP	V62/332
133VU	EFCU NORM SUPPLY SPLR 2 & 3	8CP	T62/333
133VU	EFCU NORM SUPPLY 5	70CP	T65/333
133VU	EFCU LAND RECOVERY-SUPPLY SPLR 6 & 7	9CP	T66/333
133VU	EFCU LAND RECOVERY-SUPPLY SPLR 1 & 4	72CP	T67/333
133VU	EFCU TRANSDUCERS NORM SUPPLY SPLR 1 & 4	53CP	S63/334
133VU	EFCU TRANSDUCERS NORM SUPPLY SPLR 5	55CP	S64/334
133VU	LAND RECOVERY SUPPLY SPLR 1 & 4 & 6 & 7	54CP	S67/334
133VU	EFCU TRANSDUCERS NORM-SUPPLY SPLR 2 & 3	7CP	R62/335
133VU	EFCU TRANSDUCERS NORM-SUPPLY SPLR 1 & 4	5CP	R63/335

**ON A/C 101-200,

3 On SPLR & SPD BRK section of overhead panel 428VU, press pushbutton switch 5 and release pushbutton switches 7, 6, 4 & 1 and 3 & 2.

4 Preselect ground spoilers by pulling SPEED BRAKE control lever upwards

5 Place throttle control lever in idle position.

6 At rear of rack 90VU (near utility light).
On VC connector mount disconnect connector 2392VC. Connect wheel speed simulator 35M5M01040001 between plug and receptacle. Simulate V>85 kts.
If this simulator is not available : on R and L landing gears or alternately, simulate V>85 kts by attaching wheel generator driving device 860135958100001 or 860135958100003 and 98D32403003000 to wheels 6 and 7 and driving the generator at 750 rpm.

7 Check that spoiler (5) is extended.

(b)Make certain that green hydraulic system is pressurized.

(c)Test

ACTION	RESULT
1. On panel 401VU - select LO or MED deceleration rate only.	- on selected pushbutton switch blue ON legend comes on. - selector valve 8GG is energized (pressure read on pressure gages).
2. Progressively depress Captain's left pedal.	- on selected pushbutton switch blue ON legend goes off and pushbutton switch returns to normal position (out) - amber AUTO BRK warning light flashes for 10 seconds.
3. Release Captain's left pedal.	- pressure on pressure gages drops to zero.
4. On panel 401VU - select LO or MED deceleration rate.	- on selected pushbutton switch blue ON legend comes on. - selector valve 8GG is energized (pressure read on pressure gages).
5. Perform operations 2. and 3. using the three other pedals.	- Results identical to those described in paragraphs 2. and 3.

**ON A/C ALL

Post SB 32-2058 For A/C 101-200,

3 On SPLR & SPD BRK section of overhead panel 428VU, press pushbutton switch 5 and release pushbutton switches 7, 6, 4 & 1 and 3 & 2.
4 Preselect ground spoilers by pulling SPEED BRAKE control lever upwards
5 Place throttle control lever in idle position.
6 At rear of rack 90VU (near utility light).
On VC connector mount disconnect connector 2392VC. Connect wheel speed simulator 35M5M01040001 between plug and receptacle. Simulate V>85 kts.
If this simulator is not available : on R and L landing gears or alternately, simulate V>85 kts by attaching wheel generator driving device 860135958100001 or 860135958100004 and 98D32403004000 to wheels 6 and 7 and driving the generator at 750 rpm.
7 Check that spoiler (5) is extended.

(b)Make certain that green hydraulic system is pressurized.

(c)Test

ACTION	RESULT
1. On panel 401VU - select LO or MED deceleration rate only.	- on selected pushbutton switch blue ON legend comes on. - selector valve 8GG is energized (pressure read on pressure gages).
2. Progressively depress Captain's left pedal.	- on selected pushbutton switch blue ON legend goes off and pushbutton switch returns to normal position (out) - amber AUTO BRK warning light flashes for 10 seconds.
3. Release Captain's left pedal.	- pressure on pressure gages drops to zero.
4. On panel 401VU - select LO or MED deceleration rate.	- on selected pushbutton switch blue ON legend comes on. - selector valve 8GG is energized (pressure read on pressure gages).
5. Perform operations 2. and 3. using the three other pedals.	- Results identical to those described in paragraphs 2. and 3.

**ON A/C ALL

(8)Test of autobrake system in MAX mode and manual take-over.
(a)Make certain that ground spoilers are extended (Ref. test (7) - Autobrake manual take-over test.
(b)Make certain that Captain's and First Officier's pedals are released.
(c)Test

ACTION	RESULT
1. On panel 401VU - press MAX pushbutton switch.	- on selected pushbutton switch, blue ON legend comes on and goes off when green bar on pushbutton switch comes on (maximum pressure delivered to the brakes).
2. Depress Captain's or First Officer's right pedal.	No change.
3. While maintaining right pedal depressed, progressively depress left pedal.	- on MAX pushbutton switch, green bar goes off. - amber AUTO BRK warning light flashes for 10 seconds.

NOTE : For manual take-over from autobrake in MAX mode, fully depressing one pedal only is not sufficient.
Simultaneous depression of the two Captain's or First Officer's pedals is required.

4. Release pedals.	
5. Repeat operations 1. 2. and 3. starting with a left pedal.	Identical results shall be obtained.

(9)Not applicable
(10)Test of in-flight wheel braking.
(a)Disconnect electrical connector from selector valve 3GA. This prohibits landing gear retraction.
(b)Pressurize Green hydraulic system (Ref. 29-10-00, P. Block 301).
(c)On landing gear safety relay control simulator test set, place switches 65GB, 63GB, 55GB, 82GB, 64GB, 62GB in FLIGHT position, switches 81GB, 40GB, 79GB, 66GB, 80GB in DOWNLOCKED position, switches 8GA/9GA, 11GA/12GA in FLIGHT position and switch 3GX in GROUND position.
(d)Test

ACTION	RESULT
1. On ECAM control panel - press WHEEL pushbutton switch.	On right ECAM display unit - 8 brake release symbols are displayed.

ACTION	RESULT
2. On panel 4VU - place landing gear control lever in UP position.	- 8 brake release symbols disappear (anti skid inhibited). - On pressure gages downstream of the Normal servovalves, check that pressure delivered to the brakes is 40 bars (580 psi) approx. - After 3 seconds check that the pressure delivered to the brakes drops to zero. On right ECAM display unit - 8 brake release symbols appear.

**ON A/C 105-200,

Post SB 32-2106 For A/C 105-200,

(10)Test of in-flight wheel braking.
(a)Disconnect electrical connector from selector valve 3GA. This prohibits landing gear retraction.
(b)Pressurize Green hydraulic system (Ref. 29-10-00, P. Block 301).
(c)On landing gear safety relay control simulator test set, place switches 65GB, 63GB, 55GB, 82GB, 64GB, 62GB in FLIGHT position, switches 81GB, 40GB, 79GB, 66GB, 80GB in DOWNLOCKED position, switches 8GA/9GA, 11GA/12GA in FLIGHT position and switch 3GX in GROUND position.
(d)Test

ACTION	RESULT
1. On ECAM control panel - press WHEEL pushbutton switch.	On right ECAM display unit - 8 brake release symbols are displayed.
2. On panel 4VU - place landing gear control lever in UP position.	- 8 brake release symbols disappear (anti skid inhibited). - On pressure gages downstream of the Normal servovalves, check that pressure delivered to the brakes is 23 bars (333 psi) approx. - After 3 seconds check that the pressure delivered to the brakes drops to zero. On right ECAM display unit - 8 brake release symbols appear.

ACTION	RESULT
**ON A/C ALL	
3. Place landing gear control lever in Neutral position.	No change.
4. Place landing gear control lever in UP position.	Results as for paragraph 2.
5. Less than 3 seconds after the landing gear control lever is placed in UP position, simulate right gear downlocked by placing test set switch 66GB in DOWN UNLOCKED position.	- Pressure delivered to the 8 brakes drops to zero - 8 brake release symbols appear after 3 seconds approx.
6. Place landing gear control lever in DOWN position.	

(e)Depressurize Green hydraulic system (Ref. 29-10-00, P. Block 301).
(f)Connect selector valve 3GA electrical connector.
(11)Nose gear tachometer test.
(a)Energize the aircraft electrical network (Ref. 24-41-00, P. Block 301).
(b)Remove debris guard from right (and left) nose gear tachometer generator.

ACTION	RESULT
1. On panel 11VU, on ECAM control panel - press WHEEL pushbutton switch.	On panel 4VU, on right ECAM display unit - Check that WHEEL page is displayed.
2. Manually rotate right (and left) nose gear tachometer generator shaft.	On right ECAM display unit - Check that 8 brake release symbols come on.

(c)Install debris guard on right (and left) nose gear tachometer generator.
(d)De-energize the aircraft electrical network (Ref. 24-41-00, P. Block 301).

E. Close-Up
(1)For tests (7) and (8) retract ground spoiler 5 by pushing SPEED BRAKE control lever in NORM position.
Disconnect wheel speed simulator and connect connector 2392VC if used,

or remove wheel generator driving device.
On panel 428VU, SPLR & SPD BRK section, press pushbutton switches 7, 6, 4 & 1 and 3 & 2.

(2)Depressurize Green hydraulic system and disconnect hydraulic ground power cart (Ref. 29-10-00, P. Block 301).
(3)Remove pressure gages.
(4)Check hydraulic fluid level in Green reservoir and replenish if necessary (Ref. 12-12-29, P. Block 1).
(5)De-energize the aircraft electrical network (Ref. 24-41-00, P. Block 301).
(6)Disconnect landing gear safety relay control simulator test set (Ref. 32-00-00, P. Block 501).
(7)Remove warning notices.
(8)Make certain that working area is clean and clear of tools and miscellaneous items of equipment.
(9)Restore system and aircraft to normal operating conditions.

4. System Test

A. Reasons for the Job
(1)Annunciator light test (Ref. Operational Test, paragraph D.).
(2)Test of brake selector valve and automatic selector switchover via BRK/A/SKID switch (Ref. Functional Test).
(3)Test for correct operation of pedals.
(4)Functional test of selector valve supply threshold.
(5)Measurement of residual braking torque.
(6)Test of braking interdiction prior to main gear touch-down.
(7)Test of braking upon main gear touch-down.
(8)Operational test of antiskid system.

**ON A/C 101-200,

B. Equipment and Materials

ITEM	DESIGNATION
(1)	Cart - Ground Power Supply and Preliminary Testing 150 l/min. (39.6 US GPM) Hydraulic
(2)860135953100001	Test Set - Landing Gear Safety Relay Control Simulator
(3)97A32402018000	Pressure Gage - Brake Block Hydraulic Pressure
(4)860135958100001 or 860135958100003 and 98D32403003000	Wheel Generator Driving Device
(5)	Safety Barriers
(6)	Warning Notice
(7)	Access Platform 2.60 m (8 ft. 7 in.)
Referenced Procedures	
- 07-11-00, P. Block 1	Jacking for Aircraft Maintenance Operations
- 12-12-29, P. Block 1	Hydraulics
- 24-41-00, P. Block 301	AC External Power Control
- 29-10-00, P. Block 301	Main Hydraulic Power - Pressurization/ Depressurization
- 29-21-00, P. Block 301	Green Auxiliary Power
- 29-23-00, P. Block 301	Yellow Auxiliary Power (Power Transfer Unit)
- 32-00-00, P. Block 501	Landing Gear
- 32-12-11, P. Block 301	Main Gear Main Door - (Ground Door(s) Opening)
- 32-42-00, P. Block 301	Normal Braking

C. Procedure
(1)Job set-up
(a)On panel 4VU
- make certain that landing gear control lever is in DOWN position and prohibit its operation by displaying a warning notice.

(b)Between First Officer's and Third Occupant's seats
- make certain that landing gear Free Fall extension control handle is in Normal position.

NOTE : Tests (1), (2), (3), (4), (7) and (8) do not require job set-up Para. (c), (d), (e), (f) and (g) if tests are to be performed with aircraft resting on its wheels.

(c)Position safety barriers to prohibit access to gear door travel ranges.
(d)Position access platform.

WARNING : MAKE CERTAIN THAT GEAR DOOR TRAVEL RANGES ARE CLEAR.

(e)Open left main gear door (Ref. 32-12-11, P. Block 301).

WARNING : WHEN DOOR IS OPEN, MAKE CERTAIN THAT SAFETY COLLAR IS INSTALLED ON DOOR ACTUATING CYLINDER.

(f)Jack up aircraft until wheels are clear of ground (Ref. 07-11-00, P. Block 1).
(g)Connect main landing gear safety relay control simulator test set (Ref. 32-00-00, P. Block 501) and place switches in **GROUND** and **DOWNLOCKED** position (ground configuration).
(h)Make certain that **PARKING BRAKE** control handle is in Normal (released) position.
(j)On panel 401VU
- make certain that **BRK/A/SKID** switch is in **NORM/ON** position.
(k)Install a pressure gage downstream of each normal braking servovalve (brake unit bleeder) (Tests (3), (6), (7), (8)).
(l)Energize the aircraft electrical network (Ref. 24-41-00, P. Block 301).
- Make certain that electronics racks ventilation is correct.

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B. Equipment and Materials

ITEM	DESIGNATION
(1)	Cart - Ground Power Supply and Preliminary Testing 150 l/min. (39.6 US GPM) Hydraulic
(2)860135953100001	Test Set - Landing Gear Safety Relay Control Simulator
(3)97A32402018000	Pressure Gage - Brake Block Hydraulic Pressure
(4)860135958100001 or 860135958100004 and 98D32403004000	Wheel Generator Driving Device
(5)	Safety Barriers
(6)	Warning Notice
(7)	Access Platform 2.60 m (8 ft. 7 in.)
Referenced Procedures	
- 07-11-00, P. Block 1	Jacking for Aircraft Maintenance Operations

ITEM	DESIGNATION
- 12-12-29, P. Block 1	Hydraulics
- 24-41-00, P. Block 301	AC External Power Control
- 29-10-00, P. Block 301	Main Hydraulic Power - Pressurization/ Depressurization
- 29-21-00, P. Block 301	Green Auxiliary Power
- 29-23-00, P. Block 301	Yellow Auxiliary Power (Power Transfer Unit)
- 32-00-00, P. Block 501	Landing Gear
- 32-12-11, P. Block 301	Main Gear Main Door - (Ground Door(s) Opening)
- 32-42-00, P. Block 301	Normal Braking

C. Procedure

(1)Job set-up

(a)On panel 4VU

- make certain that landing gear control lever is in **DOWN** position and prohibit its operation by displaying a warning notice.

(b)Between First Officer's and Third Occupant's seats

- make certain that landing gear Free Fall extension control handle is in Normal position.

(c)Position safety barriers to prohibit access to gear door travel ranges.

(d)Position access platform.

WARNING : MAKE CERTAIN THAT GEAR DOOR TRAVEL RANGES ARE CLEAR.

(e)Open left main gear door (Ref. 32-12-11, P. Block 301).

WARNING : WHEN DOOR IS OPEN, MAKE CERTAIN THAT SAFETY COLLAR IS INSTALLED ON DOOR ACTUATING CYLINDER.

(f)Jack up aircraft until wheels are clear of ground (Ref. 07-11-00, P. Block 1).

(g)Connect main landing gear safety relay control simulator test set (Ref. 32-00-00, P. Block 501) and place switches in **GROUND** and **DOWNLOCKED** position (ground configuration).

(h)Make certain that **PARKING BRAKE** control handle is in Normal (released) position.

(j)On panel 401VU

- make certain that **BRK/A/SKID** switch is in **NORM/ON** position.

(k)Install a pressure gage downstream of each normal braking servovalve (brake unit bleeder).

(l)Energize the aircraft electrical network (Ref. 24-41-00, P. Block 301). Make certain that electronics racks ventilation is correct.

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(m)Make certain that circuit breakers associated with braking system (circuit GG, panel 133VU, lines 331, 332 and 333) and gear extension/ retraction system (circuit GB, panel 133VU, lines 331 and 332) are closed.

(n)Connect hydraulic ground power cart to Green and Yellow hydraulic systems (Ref. 29-10-00, P. Block 301) or pressurize hydraulic systems using green electric pump (Ref. 29-21-00, P. Block 301) and G/Y PTU (Ref. 29-23-00. P. Block 301).

D. Test

(1)Annunciator light test (Ref. Operation Test, paragraph D.).

NOTE : This test can be performed with the aircraft resting on its wheels.

(2)Test of brake selector valve and automatic selector via BRK/A/SKID switch (Ref. Functional Test, paragraph D. (2)).

NOTE : This test can be performed with the aircraft resting on its wheels.

(3)Test for correct operation of pedals.

NOTE : This test can be performed with the aircraft resting on its wheels.

(a)On panel 4VU

- make certain that landing gear control lever is in DOWN position.

(b)Pressure Green hydraulic system (Ref. 29-10-00, P. Block 301).

(c)Test

ACTION	RESULT
1. Depress Captain's left pedal.	Pressure is applied to the four left gear brakes only (Pressure read on pressure gage).
2. Release Captain's left pedal.	Pressure drops to zero at the four left gear brakes.
3. Repeat above procedure for Captain's right pedal and for First Officer's left and right pedals.	Results as above.

(4)Functional test of selector valve supply threshold.

NOTE : This test can be performed with the aircraft resting on its wheels.

(a)On panel 4VU

- make certain that landing gear control lever is in DOWN position.

(b)Pressurize Green hydraulic system (Ref. 29-10-00, P. Block 301).

(c)At First Officer's station, install brake pedal load and travel measuring equipment.

(d)Gradually depress First Officer's right pedal until selector valve solenoid is heard to operate (selector valve opening).

- Check that load on pedal when selector valve opens is greater than 9 daN (20.23 lbf.) (pedal travel approximately 1°).

(e)Gradually release First Officer's right pedal until selector valve solenoid is heard to operate (selector valve closing).

- Check that load on pedal when selector valve closes is still greater than 5 daN (11.24 lbf.).

(f)Repeat operations (d) and (e) for the First Officer's left pedal.

(g)Remove brake pedal load and travel measuring equipment.

(h)At Captain's station install previously removed equipment.

(j)Carry out the same test for Captain's pedals.

(k)Remove brake pedal load and travel measuring equipment.

(5)Measurement of residual braking torque.
NOTE : This test can only be performed with the aircraft on jacks.
(a)On mechanical center pedestal 9VU
- make certain that **PARKING BRAKE** control handle is in Normal (released) position.
(b)On panel 4VU
- make certain that landing gear control lever is in **DOWN** position.
(c)Pressurize Green hydraulic system (Ref. 29-10-00, P. Block 301).
(d)Fully depress then release Captain's or First Officer's pedals.
Check that each main gear wheel can be manually rotated.
(6)Test of braking interdiction prior to main gear touch-down.
NOTE : If this test is performed with the aircraft on jacks, the landing gear safety relay control simulator test set is not required as this test is performed with the aircraft in flight configuration.
NOTE : If this test is performed with the aircraft resting on its wheels
- connect landing gear safety relay control simulator test set (Ref. 32-00-00, P. Block 501).
- place switches **63GB, 65GB, 55GB, 82GB, 64GB** and **62GB** in **FLIGHT** position.
- place switches **67GB, 81GB, 40GB, 79GB, 66GB** and **80GB** in **DOWNLOCKED** position.
(a)On mechanical center pedestal 9VU
- make certain that **PARKING BRAKE** control handle is in Normal (released) position.
(b)On panel 4VU
- make certain that landing gear control lever is in **DOWN** position.
(c)Pressurize Green hydraulic system (Ref. 29-10-00, P. Block 301).
(d)Test

ACTION	RESULT
1. On panel 11VU, on **ECAM** control panel - press **WHEEL** pushbutton switch.	On right **ECAM** display unit - **WHEEL** page is displayed - 8 brake release symbols are displayed.
2. Depress Captain's left pedal.	- No pressure is delivered to the four left gear brakes. (No pressure on pressure gage)
3. Depress Captain's right pedal.	- No pressure is delivered to the four right gear brakes. (No pressure on pressure gage)
4. Release Captain's pedals.	

(7)Test of braking upon main gear touch-down.

NOTE : If this test is performed with the aircraft on jacks, the landing gear safety relay control simulator test set is not required as this test is performed with the aircraft in flight configuration.

NOTE : If this test is performed with the aircraft resting on its wheels
- connect landing gear safety relay control simulator test set (Ref. 32-00-00, P. Block 501).
- place switches 63GB, 65GB, 55GB, 82GB, 64GB and 62GB in FLIGHT position.
- place switches 67GB, 81GB, 40GB, 79GB, 66GB and 80GB in DOWNLOCKED position.

(a)Remove tachometer drive shrouds from main gear wheels.

(b)Install main gear generator driving devices on four wheels of the same gear and connect to the test set.

(c)Test

ACTION	RESULT
1. Set all tachometer speeds to zero.	On panel 4VU, on right ECAM display unit - 8 brake release symbols are displayed.
2. Using the wheel generator driving device, drive tachometer at a speed of 1500 rpm.	- brake release symbol corresponding to the driven wheel disappears. The 7 other release symbols are still displayed.
3. Depress Captain's left pedal.	The driven wheel is the only one to be braked. Pressure can be visually checked on gage installed at brake bleeder
4. Release Captain's left pedal and stop driving tachometer.	On right ECAM display unit - all 8 brake release symbols are displayed.
5. Shut down test set power supply corresponding to checked wheel.	
6. Repeat operations 2, 3, 4 and 5 for the other 7 main gear wheels.	Identical results.
7. Remove wheel generator driving devices.	

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(8)Operational test of ANTI SKID system
NOTE 1 : This test can be performed with the aircraft resting on its wheels.
NOTE 2 : Accomplishment of this test requires use of two wheel generator driving devices 860135958100001 or 860135958100003 and 98D32403003000.
(a)On mechanical center pedestal 9VU
- make certain that PARKING BRAKE control handle is in Normal (released) position.
(b)On panel 4VU
- make certain that landing gear control lever is in DOWN position.
(c)Remove nose and main gear tachometer drive shrouds.
(d)Install first generator driving device on one of the left main gear wheels and connect driving device to test set.
(e)On test set check that the tachometer speed is set to zero.
(f)Pressurize Green hydraulic system (Ref. 29-10-00, P. Block 301).
(g)On panel 4VU, on right ECAM display unit
- no brake release symbol is displayed.

ACTION	RESULT
1. At Captain's station, depress L (R) pedal corresponding to the tachometer in operation.	The corresponding four main gear wheels are braked. Pressure can be visually checked visually checked on gages installed on brake bleeders.
2. Using the wheel generator driving device, drive one L (R) main gear tachometer at speed of 100 rpm approx. then reduce tachometer speed to zero.	- Braking pressure remains constant.
3. Release Captain's L (R) pedal.	Pressure drops to zero.
4. Repeat operation 1, 2, 3 for the other 7 main gear wheels.	Identical results.
5. On nose gear left wheel, install second driving device and connect equipment electrical supply.	
6. Drive nose gear tachometer at a speed of 1000 rmp approx.	On panel 4VU, on right ECAM display unit - 8 brake release symbols are displayed : main gear wheel speed in null (blocked wheel simulation).

ACTION	RESULT
7. Using the driving device, drive one of the left (R) main gear tachometers at a low speed (≅ 400 rpm).	- the 8 brake release symbols are still displayed.
8. Depress the brake pedal corresponding to the tachometer in rotation (Captain's or First Officer's left pedal).	- the four wheels corresponding to the depressed brake pedal are not braked.
9. Increase rotational speed of main gear tachometer to 700 rpm approx.	On panel 4VU, on right ECAM display - brake release symbol corresponding to driven wheel disappears.
10. Maintain pedal corresponding to the driven wheel in depressed position.	- The driven wheel only is braked and corresponding brake release symbol is off.
11. Decrease rotational speed of main gear tachometer.	- The wheel is no longer braked when tachometer speed is 400 rpm approx. - corresponding brake release symbol appears when braking is null.
12. Release pedal and stop driving main gear wheel tachometer.	
13. Repeat operations 5 to 11 on the seven other main gear wheels.	Results as for paragraphs 5. to 11.
14. Stop driving tachometer of nose gear left wheel and remove driving equipment.	
15. Install driving equipment on nose gear right wheel and repeat operations 5. to 12.	Results as for paragraphs 5. to 12.
16. Disconnect electrical supply to generator driving devices and remove devices.	
17. Install drive shrouds on tachometers.	

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(8)Operational test of ANTI SKID system

NOTE 1 : This test can be performed with the aircraft resting on its wheels.

NOTE 2 : Accomplishment of this test requires use of two wheel generator driving devices 8601335958100001 or 860135958100004 and 98D32403004000.

(a)On mechanical center pedestal 9VU
- make certain that PARKING BRAKE control handle is in Normal (released) position.

(b)On panel 4VU
- make certain that landing gear control lever is in DOWN position.

(c)Remove nose and main gear tachometer drive shrouds.

(d)Install first generator driving device on one of the left main gear wheels and connect driving device to test set.

(e)On test set check that the tachometer speed is set to zero.

(f)Pressurize Green hydraulic system (Ref. 29-10-00, P. Block 301).

(g)On panel 4VU, on right ECAM display unit
- no brake release symbol is displayed.

ACTION	RESULT
1. At Captain's station, depress L (R) pedal corresponding to the tachometer in operation.	The corresponding four main gear wheels are braked. Pressure can be visually checked on gages installed on brake bleeders.
2. Using the wheel generator driving device, drive one L (R) main gear tachometer at speed of 100 rpm approx. then reduce tachometer speed to zero.	- Braking pressure remains constant.
3. Release Captain's L (R) pedal.	Pressure drops to zero.
4. Repeat operation 1, 2, 3 for the other 7 main gear wheels.	Identical results.
5. On nose gear left wheel, install second driving device and connect equipment electrical supply.	
6. Drive nose gear tachometer at a speed of 1000 rmp approx.	On panel 4VU, on right ECAM display unit - 8 brake release symbols are displayed : main gear wheel speed in null (blocked wheel simulation).
7. Using the driving device, drive one of the left (R) main gear tachometers at a low speed (≅ 400 rpm).	- the 8 brake release symbols are still displayed.

ACTION	RESULT
8. Depress the brake pedal corresponding to the tachometer in rotation (Captain's or First Officer's left pedal).	- the four wheels corresponding to the depressed brake pedal are not braked.
9. Increase rotational speed of main gear tachometer to 700 rpm approx.	On panel 4VU, on right ECAM display - brake release symbol corresponding to driven wheel disappears.
10. Maintain pedal corresponding to the driven wheel in depressed position.	- The driven wheel only is braked and corresponding brake release symbol is off.
11. Decrease rotational speed of main gear tachometer.	- The wheel is no longer braked when tachometer speed is 400 rpm approx. - corresponding brake release symbol appears when braking is null.
12. Release pedal and stop driving main gear wheel tachometer.	
13. Repeat operations 5 to 11 on the seven other main gear wheels.	Results as for paragraphs 5. to 11.
14. Stop driving tachometer of nose gear left wheel and remove driving equipment.	
15. Install driving equipment on nose gear right wheel and repeat operations 5. to 12.	Results as for paragraphs 5. to 12.
16. Disconnect electrical supply to generator driving devices and remove devices.	
17. Install drive shrouds on tachometers.	

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E. Close-Up
(1) Disconnect landing gear safety relay control simulated test set (Ref. 32-00-00, P. Block 501).
(2) Lower the aircraft onto its wheels (Ref. 07-11-00, P. Block 1).
(3) Shut down Green hydraulic system and disconnect ground power cart (Ref.

29-10-00, P. Block 301).
(4)Remove pressure gages.
(5)Replenish Green hydraulic reservoir as necessary (Ref. 12-12-29, P. Block 301).
(6)Make certain that there is no hydraulic fluid leakage.
(7)Close left main gear door (Ref. 32-12-11, P. Block 301).
(8)De-energize the aircraft electrical network (Ref. 24-41-00, P. Block 301).
(9)Remove warning notices, safety barriers and access platforms.
(10)Make certain that working area is clean and clear of tools and miscellaneous items of equipment.

NORMAL BRAKING MAIN WHEEL BRAKES - DEACTIVATION/REACTIVATION

R Ref. MMEL Sect. 1-32 Items 12 (ANTI SKID system) and 6 (Main wheel brakes)
CAUTION : THIS PROCEDURE IS TO BE USED ACCORDING TO THE REQUIREMENTS OF THE MEL. IF THE BRAKE UNIT IS SEIZED OR DAMAGE EXISTS ON STATORS, ROTORS OR TORQUE TUBE, REMOVE BRAKE UNIT FOLLOWING PARAGRAPH 2.

1. Deactivation without Brake Removal

A. Equipment and Materials

ITEM	DESIGNATION
R (1)Material No. 08-061	Special Materials (Ref. 20-31-00)
(2)	Lockwire
Referenced Procedure - 32-42-27, P. Block 401	Brake Unit

B. Procedure

CAUTION : MAKE CERTAIN THAT WHEEL CHOCKS ARE IN POSITION. MAKE CERTAIN THAT PARKING BRAKE CONTROL HANDLE IS IN NORMAL (RELEASED) POSITION BEFORE DEACTIVATION. CHECK THAT ALL BRAKE PISTONS ARE RELEASED.

(1)Loosen the two knurled sleeves of the couplings to turn and disconnect.
(2)Wipe sleeve clean and apply 2 or 3 turns of 20 to 30 mm wide self adhesive fabric tape around sleeve.
(3)Tightly wind 3 or 4 turns of lockwire around mid-area of the tape-lagged sleeve. Twist lockwire and run it through the nearest or most accessible locking hole drilled in the hexagonal part of the fixed half-coupling tension lockwire and twist.
(4)Tie up supply lines on brake unit.
(5)Slowly open and tighten both bleed screws for residual brake pressure trapped in the brake.

C. Tests

(1)Pressurize brakes and check for leakage.
(2)Place a temporary placard in the flight compartment warning flight crew that brake unit No. 1 (2, 3, 4, 5, 6, 7, 8) is deactivated.
(3)Make an entry in the aircraft technical log.

D. Reactivation

(1)Refer to TSM 32-42-00.

CAUTION : DO NOT FORGET TO INSTALL THE SAFETY PIN ON THE QUICK DISCONNECT.

NOTE : Before connecting the self-sealing couplings, check the absence of damage and foreign particles in the seal groove area of the male part as well as on the female part (area of the nipple).
The male and female parts, particularly the inners areas must be cleaned.
Install a new O-ring seal and lubricate it before installation with used fluid.

(2)After trouble-shooting operations, connect self-sealing couplings, disconnected during deactivation procedure, on brake unit (Ref. 32-42-27, P. Block 401) and safetylock with safety pin.

2. Deactivation with Brake Removal

A. Equipment and Materials

ITEM	DESIGNATION
(1)98A32103501000	Bush
R (2)Material No. 08-061	Special Materials (Ref. 20-31-00)
Referenced Procedures	
- 12-37-32, P. Block 1	Wheel Replacement
- 32-11-28, P. Block 401	Brake Bar
- 32-42-27, P. Block 401	Brake Unit

B. Procedure

(1)Remove brake unit (Ref. 32-42-27, P. Block 401 up to preparation of replacement component paragraph 1.B.(3)).
(2)Remove corresponding brake bar (Ref. 32-11-28, P. Block 401).
(3)Install bush 98A32103501000 in place of brake bar at attachment on shock absorber.
WARNING : HIGH PRESSURE UNIONS.
(4)Remove both Green and Yellow hydraulic pressure hoses from brake unions and associated connecting block.
(5)Blank off open unions on connecting block with suitable steel plugs to prevent any leakage.
(6)Secure temperature sensor electrical wiring to bogie beam by means on high speed tape or other adequate material.
(7)Install wheel concerned (Ref. 12-37-32, P. Block 1).

C. Tests

(1)Pressurize brakes and check for leakage.
(2)Place a temporary placard in the flight compartment warning flight crew that brake unit No.1 (2, 3, 4, 5, 6, 7, 8,) is removed.
(3)Make an entry in the aircraft technical log.

D. Reactivation

(1)Refer to TSM 32-42-00.
(2)After trouble-shooting operations, install brake bar (Ref. 32-11-28, P. Block 401) brake unit (Ref. 32-42-27, P. Block 401), connect supply lines and electrical wiring, disconnected during removal.

Ref. MMEL 32-42-01-1) (Main Wheel Brakes) (FAA only)
Ref. MMEL 32-42-02-1)-b) (Green Brake System) (FAA only)
Ref. MMEL 32-42-07-1)-b) (Antiskid System) (FAA only)
CAUTION : THIS PROCEDURE IS TO BE USED ACCORDING TO THE REQUIREMENTS OF THE FAA MEL.
THIS PROCEDURE IS FOR AIRCRAFT WITH INTERMIXED MESSIER CARBON BRAKES (MBM318 AND PREVIOUS MB CARBON BRAKES). IF ONLY ONE BRAKE IS INOPERATIVE, DEACTIVATE ALSO A BRAKE ON THE OPPOSITE LANDING GEAR.
IF THE BRAKE UNIT IS SEIZED OR DAMAGE EXISTS ON STATORS, ROTORS OR TORQUE TUBE, REMOVE BRAKE UNIT FOLLOWING PARAGRAPH 2.

1. Deactivation without Brake Removal

A. Equipment and Materials

ITEM	DESIGNATION
R (1)Material No. 08-061	Special Materials (Ref. 20-31-00)
(2)	Lockwire
Referenced Procedure - 32-42-27, P. Block 401	Brake Unit

B. Procedure

CAUTION : MAKE CERTAIN THAT WHEEL CHOCKS ARE IN POSITION.
MAKE CERTAIN THAT PARKING BRAKE CONTROL HANDLE IS IN NORMAL (RELEASED) POSITION BEFORE DEACTIVATION.
CHECK THAT ALL BRAKE PISTONS ARE RELEASED.

(1)Loosen the two knurled sleeves of the couplings to turn and disconnect.
(2)Wipe sleeve clean and apply 2 or 3 turns of 20 to 30 mm wide self adhesive fabric tape around sleeve.
(3)Tightly wind 3 or 4 turns of lockwire around mid-area of the tape-lagged sleeve. Twist lockwire and run it through the nearest or most accessible locking hole drilled in the hexagonal part of the fixed half-coupling tension lockwire and twist.
(4)Tie up supply lines on brake unit.
(5)Slowly open and tighten both bleed screws for residual brake pressure trapped in the brake.

C. Tests

(1)Pressurize brakes and check for leakage.
(2)Place a temporary placard in the flight compartment warning flight crew that brake unit No. 1 (2, 3, 4, 5, 6, 7, 8) is deactivated.
(3)Make an entry in the aircraft technical log.

D. Reactivation

(1)Refer to TSM 32-42-00.

CAUTION : DO NOT FORGET TO INSTALL THE SAFETY PIN ON THE QUICK DISCONNECT.

NOTE : Before connecting the self-sealing couplings, check the absence of

damage and foreign particles in the seal groove area of the male part as well as on the female part (area of the nipple).
The male and female parts, particularly the inners areas must be cleaned.
Install a new O-ring seal and lubricate it before installation with used fluid.

(2)After trouble-shooting operations, connect self-sealing couplings, disconnected during deactivation procedure, on brake unit (Ref. 32-42-27, P. Block 401) and safetylock with safety pin.

2. Deactivation with Brake Removal

A. Equipment and Materials

ITEM	DESIGNATION
(1)98A32103501000	Bush
R (2)Material No. 08-061	Special Materials (Ref. 20-31-00)
Referenced Procedures	
- 12-37-32, P. Block 1	Wheel Replacement
- 32-11-28, P. Block 401	Brake Bar
- 32-42-27, P. Block 401	Brake Unit

B. Procedure

(1)Remove brake unit (Ref. 32-42-27, P. Block 401 up to preparation of replacement component paragraph 1.B.(3)).
(2)Remove corresponding brake bar (Ref. 32-11-28, P. Block 401).
(3)Install bush 98A32103501000 in place of brake bar at attachment on shock absorber.
WARNING : HIGH PRESSURE UNIONS.
(4)Remove both Green and Yellow hydraulic pressure hoses from brake unions and associated connecting block.
(5)Blank off open unions on connecting block with suitable steel plugs to prevent any leakage.
(6)Secure temperature sensor electrical wiring to bogie beam by means on high speed tape or other adequate material.
(7)Install wheel concerned (Ref. 12-37-32, P. Block 1).

C. Tests

(1)Pressurize brakes and check for leakage.
(2)Place a temporary placard in the flight compartment warning flight crew that brake unit No.1 (2, 3, 4, 5, 6, 7, 8,) is removed.
(3)Make an entry in the aircraft technical log.

D. Reactivation

(1)Refer to TSM 32-42-00.
(2)After trouble-shooting operations, install brake bar (Ref. 32-11-28, P. Block 401) brake unit (Ref. 32-42-27, P. Block 401), connect supply lines and electrical wiring, disconnected during removal.

R IN-FLIGHT WHEEL BRAKING SYSTEM - DEACTIVATION/REACTIVATION

R Ref. MMEL 32-42-10 (In-flight Wheel Braking System) (FAA only)
R CAUTION : THIS PROCEDURE IS TO BE USED ACCORDING TO THE REQUIREMENTS OF
R THE FAA MMEL.
R 1. Equipment and Materials

ITEM	DESIGNATION
Referenced Procedures	
- 32-42-00, P. Block 501	Normal Braking - Adjustment/Test
- 32-42-83, P. Block 901	NLG In-Flight Brake Band - Deactivation/ Reactivation

R 2. Procedure
R (1)Main wheel braking, if inoperative :
R (a)On the right and the left MLG, make sure that pistons associated with green system are retracted.
R (b)Perform a Normal braking operational test (Ref. 32-42-00, P. Block 501).
R (2)NLG in-flight brake bands, if inoperative, refer to NLG in-flight brake bands Deactivation/Reactivation (Ref. 32-42-83, P. Block 901).

R Ref. MMEL Sect. 1.32 Item 11 (Main landing gear tachometers)

1. Main Landing Gear Wheel Tachometer

A. Reason for the Job
(1)Test of antiskid from maintenance panel.
(2)BITE test of BSCU.
(3)Proximity detector continuity test.

B. Equipment and Materials

ITEM	DESIGNATION
(1)	Circuit Breaker Safety Clips
(2)	Wheel Chocks
(3)	Warning Notice
Referenced Procedure - 24-41-00, P. Block 301	AC External Power Control

C. Test of Antiskid from Maintenance Panel
(1)Job set-up
(a)Make certain that wheel chocks are in position.
(b)Make certain that circuit breakers associated with braking system (circuit GG) and gear extension/retraction system (circuit GB) are closed.
(c)On panel 4VU
- make certain that landing gear control lever is in DOWN position and prohibit its operation by displaying a warning notice.
(d)Between First Officer's and Third Occupant's seats
- make certain that landing gear Free Fall extension control handle is in Normal position.
(e)Make certain that PARKING BRAKE control handle is in Normal (released) position.
(f)On panel 401VU
- make certain that BRK/A/SKID switch is in NORM/ON position.
(g)Energize the aircraft electrical network (Ref. 24-41-00, P. Block 301)
- make certain that electronics racks ventilation is correct.
(2)Test

ACTION	RESULT
1. On maintenance panel 472VU - place ANN LT switch in READ position.	
2. On panel 11VU, on ECAM control panel - press WHEEL pushbutton switch	On panel 4VU, on right ECAM display unit - check that WHEEL page is displayed.
3. On ANTI SKID section of maintenance	On panel 4VU, on right ECAM display

ACTION	RESULT
panel 471VU - press OK pushbutton switch for more than 10 seconds	unit - the brake release symbols for the non affected wheel appear a few seconds after the OK pushbutton switch has been pressed. They disappear 10 seconds after this OK pushbutton switch has been released.

NOTE 1 : A protective circuit interrupts the test after 10 seconds in the event of OK pushbutton switch failure (jamming of pushbutton switch in pressed position).
The brake release symbols for the non affected wheel disappear 10 seconds after the OK pushbutton switch has been released.

R D. BITE Test of BSCU (Ref. 32-42-00, P. Block 501)

NOTE : Code 051 is for wheel 1
Code 052 is for wheel 2
Code 053 is for wheel 3
Code 054 is for wheel 4
Code 055 is for wheel 5
Code 056 is for wheel 6
Code 057 is for wheel 7
Code 058 is for wheel 8

E. Proximity Detector Continuity Test

(1)Job set-up

NOTE : This test is only possible with the aircraft on its wheels, and engines shutdown. Engine shutdown signal is provided by engine 2 low oil pressure switch.
In all other configurations, NT code is displayed when TEST pushbutton switch is pressed (in).
The test checks the proximity detector processing unit electronic cards, the power supplies continuity of wiring to the sensors and the sensors themselves.

(2)Test

(a)On proximity detector processing unit 54GB

- place LAMP/TEST/SYSTEM/TEST switch in SYSTEM/TEST position.

The test is entirely automatic and lasts approximately 1 minute.
During the test CC code flashes on face of unit.

NOTE : If a fault is detected in one of the channels :
- the digital display will indicate the number of the faulty channel and a fault code,
- SENSOR or BOX annunciator will come on according to the origin of the fault.

When the test has finished code 99 is displayed.

(b)On proximity detector processing unit 54GB

- place LAMP/TEST/SYSTEM/TEST switch in neutral position.

(3)Close-up
(a)De-energize the aircraft electrical network
(Ref. 24-41-00, P. Block 301).
(b)Remove warning notice.
(c)Restore system and aircraft to normal operating conditions.
(d)Make certain that working area is clean and clear of tools and miscellaneous items of equipment.

BRAKE SELECTOR VALVE (8GG) - REMOVAL/INSTALLATION

R **WARNING** : CHECK THAT THE LANDING GEAR GROUND SAFETIES INCLUDING WHEEL CHOCKS ARE IN POSITION.
BEFORE APPLYING OR RELIEVING HYDRAULIC SYSTEM PRESSURE, MAKE CERTAIN THAT THE TRAVEL RANGES OF THE CONTROL SURFACES ARE CLEAR.
BEFORE PRESSURIZING HYDRAULIC SYSTEMS, CHECK THAT ALL CONTROLS ARE SET TO CORRESPOND WITH THE ACTUAL POSITION OF THE SERVICES THEY OPERATE.
BEFORE POWER IS SUPPLIED TO THE AIRCRAFT MAKE CERTAIN THAT ELECTRICAL CIRCUITS UPON WHICH WORK IS IN PROGRESS ARE ISOLATED.
BEFORE PRESSURIZING HYDRAULIC SYSTEMS MAKE CERTAIN THAT HYDRAULIC SYSTEM UNDER MAINTENANCE HAS BEEN ISOLATED.

1. Equipment and Materials

ITEM	DESIGNATION
A. 99A29001006000	Unit-Topping Up, Hydraulic Tank (Hand Operated)
B. 97A29102035000	Connector-Pressurizing, Hydraulic Tank
C. 97A29102062000	Connector-Depressurizing, Hydraulic Tank
D.	Safety Barriers
E.	Wheel Chocks
F.	Hydraulic Fluid Container
G.	Access Platform (2.60 m)(8 ft. 7 in.)
H.	Warning Notice
J.	Circuit Breaker Safety Clips
K. Material No. 11-002	Cleaning Agents (Ref. 20-31-00)
L.	Blanking plugs
Referenced Procedures	
- 12-12-29, P. Block 1	Hydraulic Reservoir Replenishing
- 29-10-00, P. Block 301	Main Hydraulic Power-Pressurization/ Depressurization
- 29-14-00, P. Block 301	Hydraulic Reservoir-Pressurization/ Depressurization
- 32-12-11, P. Block 301	Main Gear Main Door - (Ground Door(s) Opening)
- 32-42-00, P. Block 501	Normal Braking
- 32-42-00, P. Block 301	Normal Braking

2. Procedure

A. Job Set-Up
(1)On panel 4VU
- make certain that landing gear control lever is in **DOWN** position and display a warning notice prohibiting its operation.

(2)Between First Officer's and Third Occupant's seats
- make certain that landing gear Free Fall extension control handle is in Normal position.

(3)Open, safety and tag the following circuit breakers :

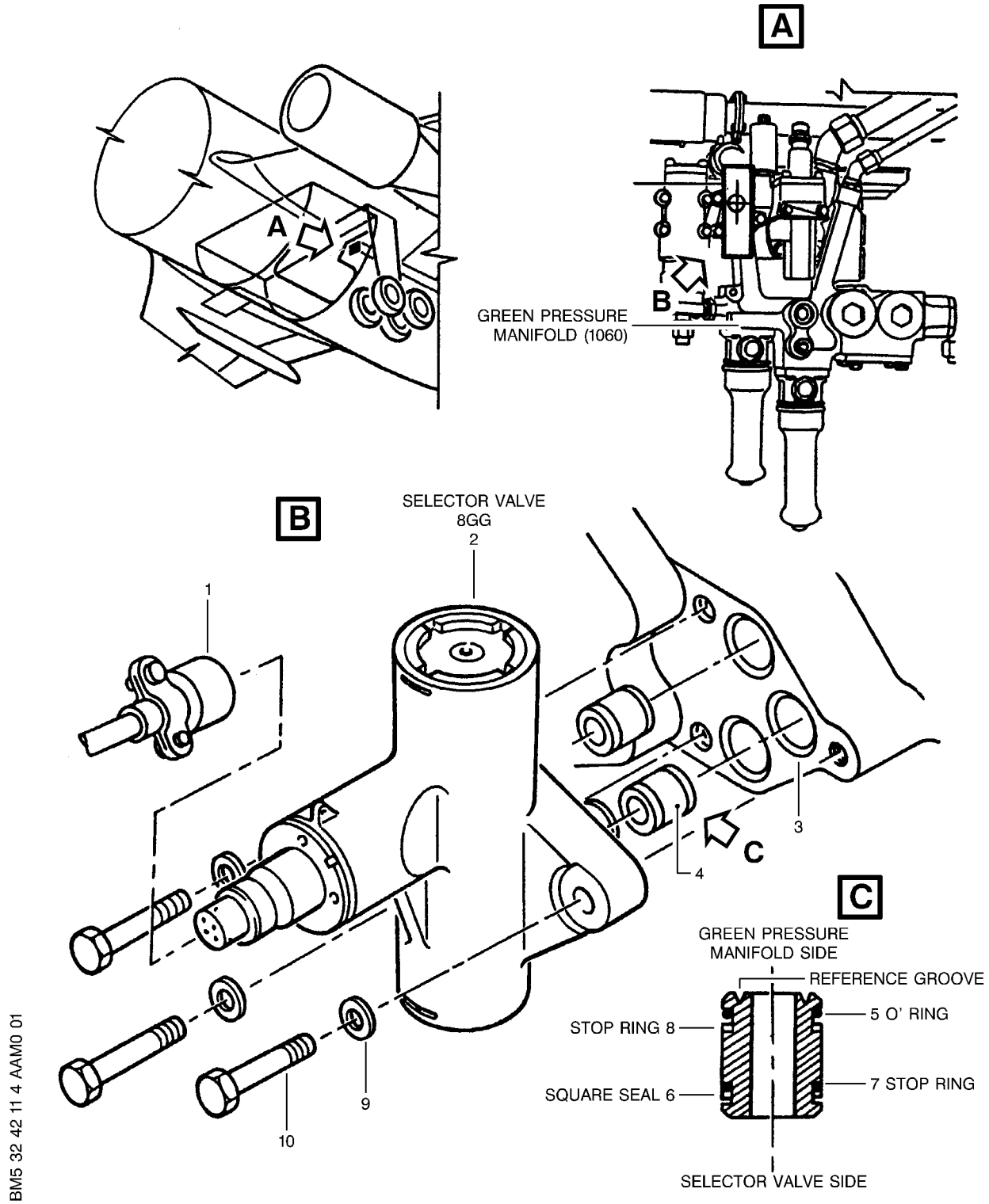
PANEL	SERVICE	IDENT.	LOCATION
133VU	HYDRAULIC-BRAKES SYSTEM /CTL UNIT CTL/WARN	5GG	333/T56
133VU	HYDRAULIC/ELEC/PUMPS/WARN	4GE	331/V60
133VU	HYDRAULIC-ACCU PRESS CTL AND CARGO DOOR PUMP	7GX	333/T51

(4)Position access platform.
(5)Position safety barriers prohibiting access to gear door travel ranges.
WARNING : MAKE CERTAIN THAT THE DOOR TRAVEL RANGES ARE CLEAR.
(6)Open LH main gear door (Ref. 32-12-11, P. Block 301).
WARNING : WHEN DOORS ARE OPEN MAKE CERTAIN THAT SAFETY COLLARS ARE POSITIONED ON DOOR ACTUATING CYLINDERS.
(7)Depressurize Green hydraulic reservoir (Ref. 29-14-00, P. Block 301) and prohibit its pressurization by displaying a warning notice :
- on panel 429VU to prohibit APU starting,
- on reservoir pressurization connector.
(8)Depressurize Green hydraulic system (Ref. 29-10-00, P. Block 301) and prohibit its pressurization by displaying a warning notice :
- on Green system ground connectors,
- on panel 427VU, to prohibit operation of Green electric pumps (ELEC PUMPS pushbutton switch).
(9)Position hydraulic fluid container.

B. Removal

R (Ref. Fig. 401)
(1)Disconnect electrical connector (1) and install blanking caps on selector valve (2) and electrical connector (1).
(2)Cut and remove lockwire, remove screws (10) securing selector valve (2) on manifold (3). Retain washers (9).
(3)Remove selector valve (2).
(4)Remove equipped spools (4).
(5)Discard O-rings (5) and square-section seals (6).
(6)Check that back-up rings (7) and (8) are in correct condition and replace if necessary.
(7)Blank off manifold (3), using blanking plugs.

C. Preparation of Replacement Component
NOTE : The replacement selector valve is filled with aircraft system hydraulic fluid Material No. 11-002.
(1)Depreserve replacement selector valve (2) by removing the external protective coverings.
(2)Clean selector valve (2) and manifold (3) contact surfaces with Material No. 11-002. Dry with filtered compressed air.
(3)Lubricate square-section seals (6) and O-rings (5) with aircraft system hydraulic fluid.
(4)On each spool (4), make certain that back-up rings (7) and (8) are correctly positioned. Install O-rings (5) and square-section seals (6).
NOTE : Insert O-ring (5) in groove at spool end with reference groove.



Brake Selector Valve (8GG)
Figure 401

(5)Install spools (4) on selector valve (2).
CAUTION : SPOOL UNREFERENCED END MUST BE INSERTED INTO SELECTOR VALVE (2) BORE.
REFERENCE GROOVE END MUST BE INSERTED IN MANIFOLD (3) BORE.

D. Installation
(1)Remove blanking plugs from manifold (3).
(2)Position selector valve on manifold (3) and insert spools (4) in their recesses.
(3)Install bolts (10) equipped with washers (9). Safety with lockwire.
(4)Remove blanking caps and connect electrical connector (1).
(5)Bleed braking system from flight compartment (Ref. 32-42-00, P. Block 301).

E. Tests
(1)Remove safety clips and tags and close circuit breakers 5GG, 4GE and 7GX.
(2)Carry out a Normal braking operational test (Ref. 32-42-00, P. Block 501).
NOTE : Selector valve must be carefully checked for leakage during initial pressurization and upon completion of tests.

F. Close-Up
(1)Make certain that working area is clean and clear of tools and miscellaneous items of equipment.
(2)Remove hydraulic fluid container.
(3)Pressurize Green hydraulic reservoir (Ref. 29-14-00, P. Block 301).
WARNING : MAKE CERTAIN THAT DOOR TRAVEL RANGES ARE CLEAR.
(4)Close main landing gear door (Ref. 32-12-11, P. Block 301).
(5)Top up Green hydraulic reservoir (Ref. 12-12-29, P. Block 1).
(6)Remove warning notices.
(7)Remove access platform and safety barriers.
(8)Remove all ground handling and maintenance equipment standard and special tools, together with ground power and replenishing equipment, all access equipment and miscellaneous items.

HYDRAULIC FILTER (1298) - SERVICING

WARNING : CHECK THAT THE LANDING GEAR GROUND SAFETIES INCLUDING WHEEL CHOCKS ARE IN POSITION.

BEFORE APPLYING OR RELIEVING HYDRAULIC SYSTEM PRESSURE, MAKE CERTAIN THAT THE TRAVEL RANGES OF THE CONTROL SURFACES ARE CLEAR.

BEFORE PRESSURIZING SYSTEMS, CHECK THAT ALL CONTROLS ARE SET TO CORRESPOND WITH THE ACTUAL POSITION OF THE SERVICES THEY OPERATE.

1. Equipment and Material

ITEM	DESIGNATION
A. 97A29102035000	Connector-Pressurizing, Hydraulic Tank
B. 97A29102062000	Connector-Depressurizing, Hydraulic Tank
C.	Hydraulic Fluid Container
D.	Access Platform (2.60 m) (8 ft. 7 in.)
E. Material No. 11-002	Cleaning Agents (Ref. 20-31-00)
F.	Lockwire
G.	Warning Notice
Referenced Procedures	
- 12-12-29, P. Block 1	Hydraulics
- 24-41-00, P. Block 301	AC External Power Control
- 29-10-00, P. Block 301	Main Hydraulic Power-Pressurization/Depressurization.
- 29-14-00, P. Block 301	Hydraulic Reservoir Pressurizing System
- 29-21-00, P. Block 301	Green Auxiliary Power
- 32-12-11, P. Block 301	Main Gear Main Door-(Ground Door(s) Opening)
- 32-42-00, P. Block 301	Normal Braking

2. Procedure

A. Job Set-Up
(1)On panel 4VU
- make certain that landing gear control lever is in DOWN position and prohibit its operation by displaying a warning notice.

(2)Between First Officer's and Third Occupant's seats
- make certain that landing gear Free Fall extension control handle is in Normal position.

(3)Open, safety and tag the following circuit breakers

PANEL	SERVICE	IDENT.	LOCATION
133VU	HYDRAULIC/ELEC/PUMPS/WARN	4GE	331/V60
133VU	HYDRAULIC/ACCU PRESS/CTL &/CARGO DOOR/ PUMP	7GX	333/T51

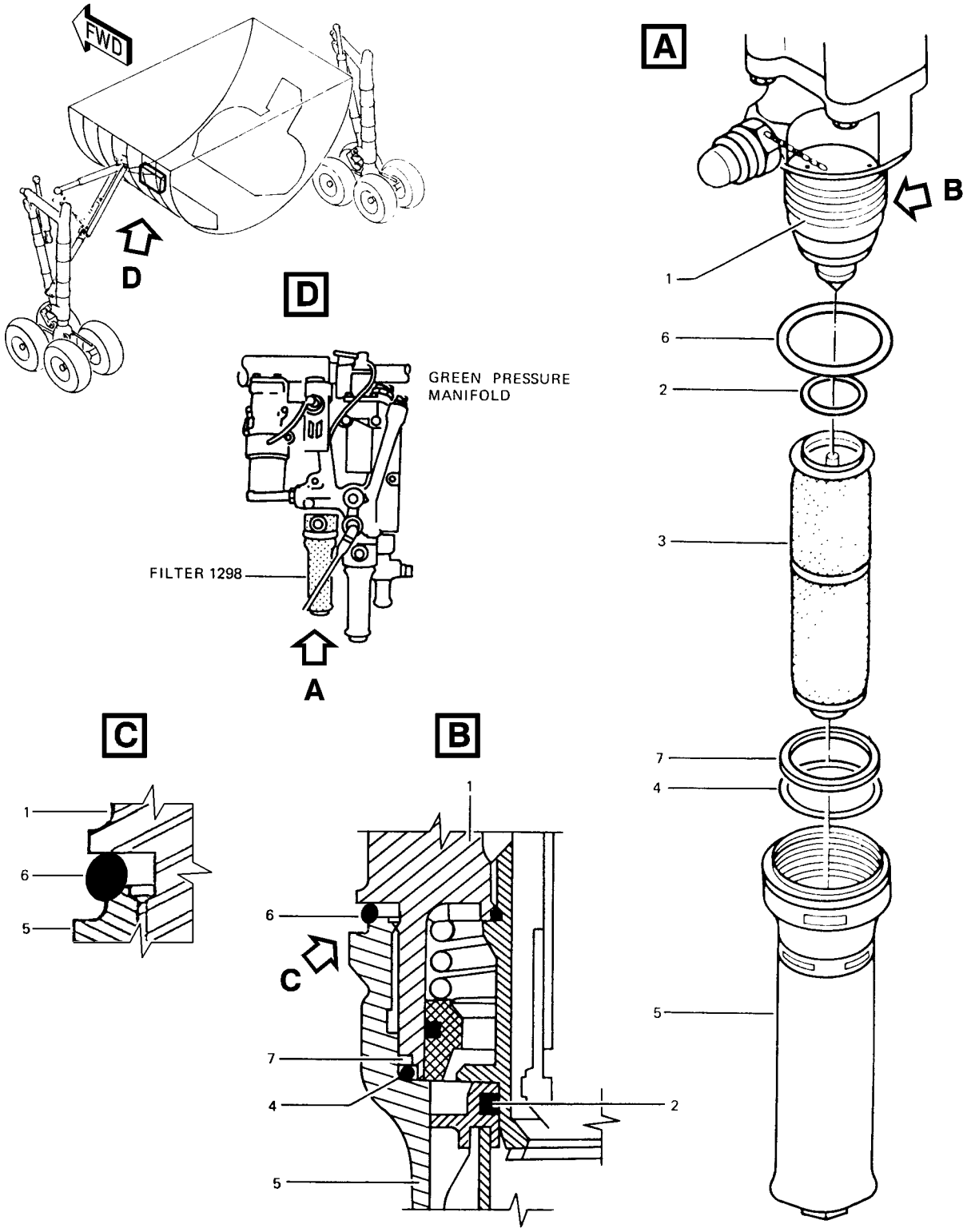
(4)Position access platform.
(5)Position safety barriers prohibiting access to gear door travel range.
WARNING : MAKE CERTAIN THAT THE DOOR TRAVEL RANGES ARE CLEAR.
(6)Open main gear left door (Ref. 32-12-11, P. Block 301).
WARNING : WHEN DOORS ARE OPEN MAKE CERTAIN THAT SAFETY COLLARS ARE POSITIONED ON DOOR ACTUATING CYLINDERS.
(7)Depressurize Green hydraulic reservoir (Ref. 29-14-00, P. Block 301) and prohibit its pressurization by displaying a warning notice :
- on panel 429VU to prohibit APU starting
- on reservoir pressurization connector

(8)Depressurize Green hydraulic system (Ref. 29-10-00, P. Block 301) and prohibit its pressurization by displaying a warning notice :
- on Green system ground connectors
- on panel 427VU, to prohibit energization of Green ELEC PUMPS (ELEC PUMPS pushbutton switch)

(9)Energize the aircraft electrical network (Ref. 24-41-00, P. Block 301).
(10)Make certain that electronics rack ventilation is correct.
WARNING : MAKE CERTAIN THAT GREEN HYDRAULIC SYSTEM IS NOT SUPPLIED.

B. Removal (Ref. Fig. 301)
(1)Cut and remove lockwire between filter head (1) and bowls (5).
(2)Unscrew bowl (5).
(3)Discard O-ring (6).
R (4)Discard O-ring (4) and remove backup ring (7).
(5)Remove filter element (3) from bowl (5). Discard O-ring (2).
NOTE : If filter element (3) is reusable and if it cannot be cleaned immediately after removal, immerse it in hydraulic fluid after having blanked its outlet port.
Make certain that backup ring (7) is in correct condition.

C. Installation
CAUTION : INSTALL NEW OR RECONDITIONED FILTER ELEMENT.
FOR A REUSABLE FILTER ELEMENT, CLEANING MUST BE PERFORMED IN AN ULTRASONIC TANK AND BE FOLLOWED BY A PERFORMANCE TEST. BEFORE INSTALLATION NEW O-RINGS MUST BE COATED WITH HYDRAULIC FLUID.



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Hydraulic Filter
Figure 301

R

(1)Install new O-ring (4) and thrust backup ring (7) on bowl (5).
(2)Install new O-ring (2) on filter element (3).
(3)Install filter element (3) in bowl (5), previously cleaned then dried off with clean and dry compressed air.
R (4)Install new O-ring (6) on bowl (5).
R (5)Position bowl/filter element assembly under filter head (1).
R (6)Tighten bowl (5) home and TORQUE to 4 ± 0.2 m. daN. (30 ± 1.5lbf. ft.).
R (7)Wirelock bowl (5).
R (8)Press clogging indicator if protruding.
NOTE : If required by filter category, install new O-ring (6) on filter head (1).

D. Test
(1)Pressurize Green hydraulic reservoir (Ref. 29-14-00, P. Block 301).
(2)Remove safety clips and tags, and close circuit breakers 4GE and 7GX.
(3)Energize the aircraft electrical network (Ref. 24-41-00, P. Block 301). Make certain that electronics racks ventilation is correct.
(4)Pressurize the Green auxiliary system by means of Green electrical pumps (Ref. 29-21-00, P. Block 301).
(5)Exert pressure on brake pedal so as to open hydraulic selector valve 8GG.
(6)Check for leakage on filter.
(7)Cut off the power supply to Green sytem electric pumps (Ref. 29-21-00, P. Block 301)
(8)Bleed braking system from flight compartment (Ref. 32-42-00, P. Block 301).

E. Close-Up
(1)Remove hydraulic fluid container.
WARNING : MAKE CERTAIN THAT DOOR TRAVEL RANGES ARE CLEAR.
(2)Close main gear door (Ref. 32-12-11, P. Block 301).
(3)De-energize the aircraft electrical network (Ref. 24-41-00, P. Block 301).
(4)Remove warning notices.
(5)Close access doors, remove access platform and safety barriers.
(6)Remove all ground handling and maintenance equipment, standard and special tools, together with ground power and replenishing equipment, all access equipment and miscellaneous items.

HYDRAULIC FILTER (1298) - INSPECTION/CHECK

1. General

This filter is composed of a light alloy body and filter bowl containing either a re-usable metallic element or an element which is discarded.
The filter head has a by-pass which allows passage of hydraulic fluid should the filter become clogged.
Filter clogging is indicated by a clogging indicator which pops out above the filter outlet.

2. Equipment and Materials

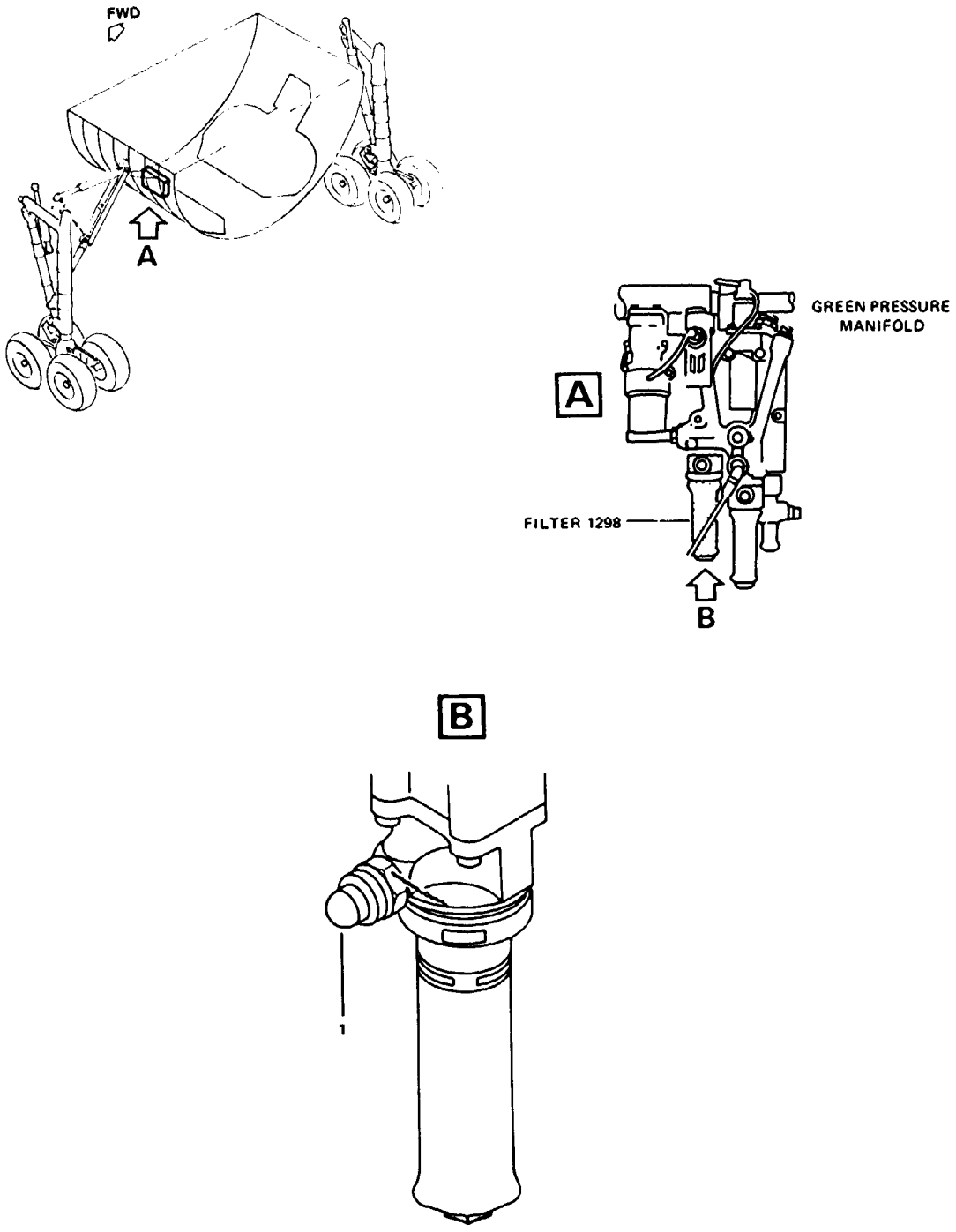
ITEM	DESIGNATION
A.	Access Platform, 2.60 m (8 ft. 8 in.)
Referenced Procedure - 32-42-12, P. Block 301	Filter - Hydraulic

3. Procedure

A. Job Set-Up
(1)Position access platform.

4. Check (Ref. Fig. 601)

A. Check that clogging indicator (1) has not popped out on the filter head.
If it has, replace filter element (Ref. 32-42-12, P. Block 301).



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Hydraulic Filter - Location
Figure 601

AUTOMATIC SELECTOR (1300) - REMOVAL/INSTALLATION

WARNING : CHECK THAT THE LANDING GEAR GROUND SAFETIES INCLUDING WHEEL CHOCKS ARE IN POSITION.
BEFORE APPLYING OR RELIEVING HYDRAULIC SYSTEM PRESSURE, MAKE CERTAIN THAT THE TRAVEL RANGES OF THE CONTROL SURFACES ARE CLEAR.
BEFORE PRESSURIZING HYDRAULIC SYSTEMS, CHECK THAT ALL CONTROLS ARE SET TO CORRESPOND WITH THE ACTUAL POSITION OF THE SERVICES THEY OPERATE.
BEFORE POWER IS SUPPLIED TO THE AIRCRAFT MAKE CERTAIN THAT ELECTRICAL CIRCUITS UPON WHICH WORK IS IN PROGRESS ARE ISOLATED.
BEFORE PRESSURIZING HYDRAULIC SYSTEMS, MAKE CERTAIN THAT HYDRAULIC SYSTEM UNDER MAINTENANCE HAS BEEN ISOLATED.

1. Equipment and Materials

ITEM	DESIGNATION
A.	Wheel Chocks
B.	Vinyl Piping
C.	Hydraulic Fluid Container
D.	Circuit-Breaker Safety Clips
E.	Blanking Plugs
F.	Access Platform (2.60 m) (8 ft. 7 in.)
G.	Safety Barriers
H.	Warning Notice
J. Material No. 11-002	Cleaning Agents (Ref. 20-31-00)
Referenced Procedures	
- 12-12-29, P. Block 1	Hydraulics
- 29-10-00, P. Block 301	Main Hydraulic Power - Pressurization/ Depressurization
- 29-14-00, P. Block 301	Hydraulic Reservoir Pressurizing System
- 29-21-00, P. Block 301	Green Auxiliary Power
- 29-23-00, P. Block 301	Yellow Auxiliary Power (Power Transfer Unit)
- 32-12-11, P. Block 301	Main Gear Main Door - (Ground Door(s) Opening)
- 32-42-00, P. Block 501	Normal Braking
- 32-43-00, P. Block 501	Alternate Braking with Anti Skid
- 32-44-00, P. Block 501	Alternate Braking without Anti Skid

2. Procedure

A. Job Set-Up
(1)On panel 4VU
- Make certain that landing gear control lever is in **DOWN** position and prohibit its operation by displaying a warning notice.

(2)Between First Officer's and Third Occupant's seats
- make certain that landing gear Free Fall extension control handle is in Normal position.

(3)Make certain that wheel chocks are in position.
(4)On mechanical center pedestal 9VU
- place **PARKING BRAKE** control handle in Normal (released) position.

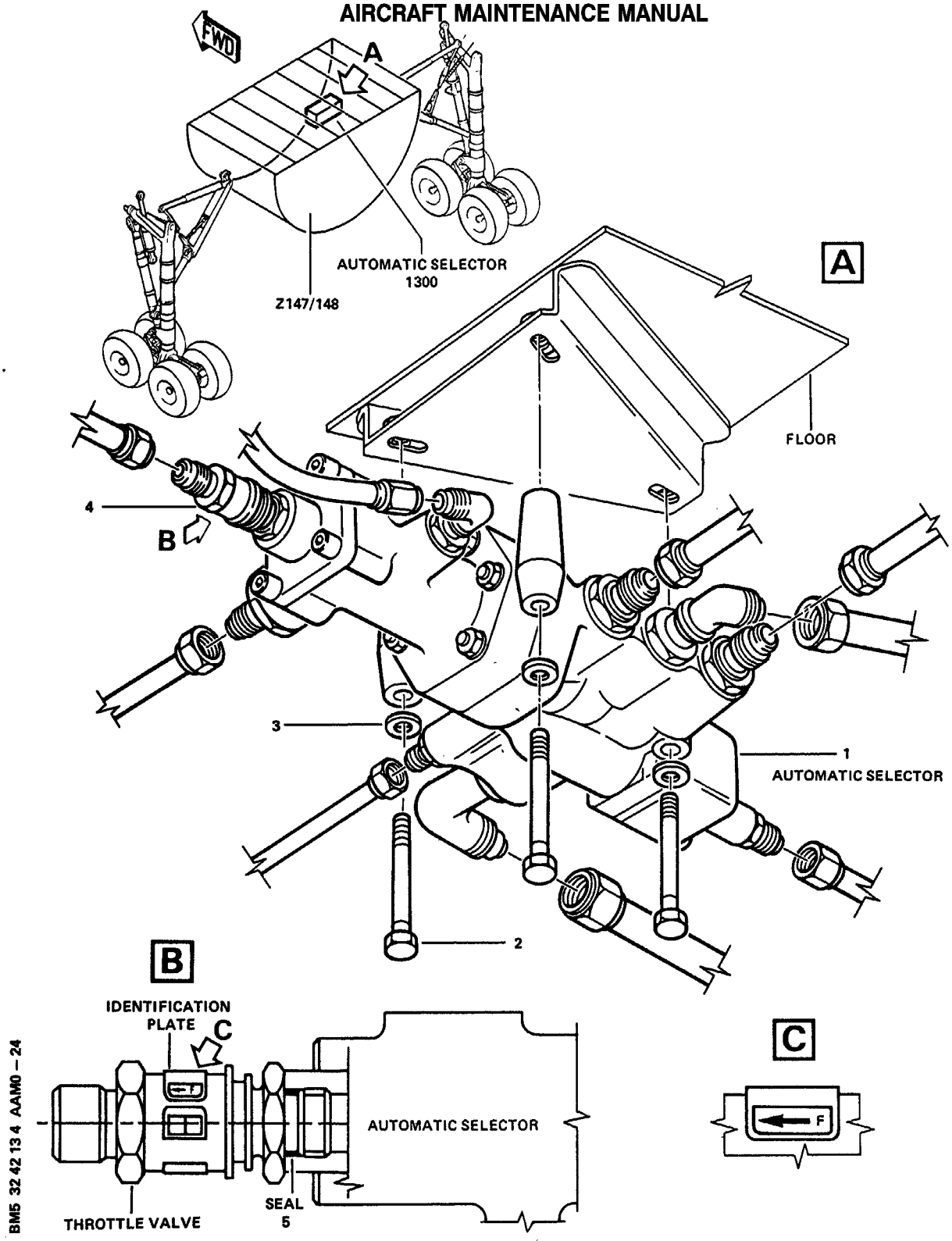
(5)Open, safety and tag the following circuit breakers

PANEL	SERVICE	IDENT.	LOCATION
133VU	HYDRAULIC/ACCU PRESS/CTL &/CARGO DOOR/ PUMP	7GX	333/T51
133VU	HYDRAULIC/ELEC/PUMPS/WARN	4GE	331/V60

(6)Position access platform.
(7)Position safety barriers prohibiting access to gear door travel ranges.
WARNING : MAKE CERTAIN THAT DOOR TRAVEL RANGES ARE CLEAR.
(8)Open left main gear door (Ref. 32-12-11, P. Block 301).
WARNING : WHEN DOORS ARE OPEN MAKE CERTAIN THAT SAFETY COLLARS ARE POSITIONED ON DOOR ACTUATING CYLINDERS.
(9)Depressurize Green and Yellow hydraulic reservoirs (Ref. 29-14-00, P. Block 301) and prohibit their pressurization by displaying a warning notice :
- on panel 429VU to prohibit APU starting
- on reservoir pressurization connectors.
(10)Depressurize Green hydraulic system (Ref. 29-10-00, P. Block 301) and prohibit its pressurization by displaying a warning notice :
- on Green system ground connectors
- on panel 427VU, to prohibit operation of Green electric pumps (ELEC PUMPS pushbutton switch).
(11)Depressurize Yellow hydraulic system (Ref. 29-10-00, P. Block 301) and prohibit its pressurization by displaying a warning notice.
- on Yellow system ground connectors
- on panel 427VU to prohibit energization of power transfer unit (right PTU pushbutton switch)
(12)Gain access to automatic selector 1300 in hydraulics compartment, zone 148.
(13)Remove automatic selector protective grid.

B. Removal
(Ref. Fig. 401)
(1)Mark and disconnect hydraulic lines and install blanking plugs/caps.
(2)Remove selector 1300 (1)
(a)Remove screws (2) together with washers (3).
(b)Remove selector (1)

C. Preparation of Replacement Component
NOTE : The replacement selector is filled with aircraft system hydraulic fluid (Ref. 20-31-00).
(1)Depreserve replacement selector and remove protective coverings.
(2)Clean selector with Material No.11-002 and dry with filtered compressed air.
(3)If the replacement component is delivered without hydraulic connectors, remove connectors from removed component. Clean and check connectors and install them on replacement component with new seals.
(4)Install throttle valve on replacement automatic selector with new seal.
- Check that seal (5) is correctly installed in groove.



Automatic Selector 1300
Figure 401

- Take particular care to ensure that throttle valve is correctly installed (Ref. Fig. 401).

CAUTION : A RED ARROW IDENTIFIED F IS PROVIDED ON SOME IDENTIFICATION PLATES. THE ARROW INDICATES THROTTLING DIRECTION AND NOT FLOW DIRECTION ; THEREFORE, ONCE THROTTLE VALVE IS INSTALLED, THE ARROW SHOULD POINT AWAY FROM AUTOMATIC SELECTOR.

D. Installation
(1)Install selector (1)
(2)Install washers (3) and fully tighten screws (2).
(3)Remove blanking plugs/caps and connect hydraulic lines.
(4)Remove safety clips and tags and close circuit breakers 7GX and 4GE.
(5)Not applicable.
(6)Bleed Yellow system
(a)Make certain that BRK/A/SKID switch 96GG is in ALTN position.
(b)Make certain that Yellow system is pressurized.
(c)On brake unit of a rear wheel, remove cap from bleed screw and connect vinyl piping. Submerge free end of piping in hydraulic fluid container.
NOTE : On the aft wheels the alternate braking bleed screws are located forward on the brake units.
(d)Slightly depress pedal corresponding to brake involved.
(e)Slowly open bleed screw until steady fluid flow is obtained.
(f)Close bleed screw and release pedal.
(g)Apply this operation until air bubbles are no longer observed in vinyl piping.
(h)Place PARKING BRAKE control handle in on (applied) position.
(j)Slowly open bleed screw until steady fluid flow is obtained.
(k)Close bleed screw and place PARKING BRAKE control handle in Normal (released) position.
(l)Repeat this operation until air bubbles are no longer observed in vinyl-piping.
(m)Disconnect vinyl piping, clean bleed screws to remove all trace of fluid and install blanking cap on bleed screw.
(n)Using same method bleed the seven other brakes.
(o)Shut down Yellow transfer pumps (Ref. 29-23-00, P. Block 301).
(7)Bleed Green system
(a)Place BRK/A/SKID switch 96GG in NORM/ON position and prohibit movement of same by displaying a warning notice.
(b)Make certain that Green auxiliary system is pressurized.
(c)On brake unit of a rear wheel remove bleed screw cap and connect vinyl piping. Submerge free end of piping in hydraulic fluid container.
NOTE : On the aft wheels, normal system bleed screws are located aft on the brake units
(d)Slightly depress brake pedal corresponding to brake involved.
(e)Slowly open bleed screw until steady fluid flow is obtained.
(f)Close bleed screw and release pedal.
(g)Repeat this operation until air bubbles are no longer observed in vinyl piping.
(h)Remove vinyl piping, clean bleed screw to remove all trace of fluid and install bleed screw cap.

(j)Using same method bleed the seven other brakes.
(k)Shut down Green pumps (Ref. 29-21-00, P. Block 301).
(l)Install automatic selector protective grid.

E. Test

R (1)Perform a functional test of maximum pressure delivered to the brakes
R (Ref. 32-42-00, P. Block 501).
(2)Perform functional test of braking supplied with accumulator pressure (Ref. 32-44-00, P. Block 501 para. 2. D. (4)).
(3)Perform operational test of alternate braking with and without anti skid (Ref. 32-43-00, P. Block 501 para. 1. D. (3)).
NOTE : During tests and upon completion of tests, perform visual check for leakage at bleed screws and at hydraulic connectors on automatic selector.

F. Close-Up

(1)Remove hydraulic fluid container.
(2)Make certain that work area is clean and clear of tools and miscellaneous items of equipment.
(3)Pressurize hydraulic reservoirs (Ref. 29-14-00, P. Block 301).
WARNING : MAKE CERTAIN THAT DOOR TRAVEL RANGES ARE CLEAR.
(4)Close landing gear doors (Ref. 32-12-11, P. Block 501).
(5)Replenish reservoirs as required (Ref. 12-12-29, P. Block 1).
(6)Remove warning notices
(7)Close access doors, remove access platform and safety barriers.
(8)Remove all ground handling and maintenance equipment, standard and special tools, together with ground power and replenishing equipment.

NORMAL BRAKE SERVOVALVE MANIFOLD (1312-1313) - REMOVAL/INSTALLATION

WARNING : CHECK THAT THE LANDING GEAR GROUND SAFETIES INCLUDING WHEEL CHOCKS ARE IN POSITION.

BEFORE APPLYING OR RELIEVING HYDRAULIC SYSTEM PRESSURE, MAKE CERTAIN THAT THE TRAVEL RANGES OF THE CONTROL SURFACES ARE CLEAR.

BEFORE PRESSURIZING HYDRAULIC SYSTEMS, CHECK THAT ALL CONTROLS ARE SET TO CORRESPOND WITH THE ACTUAL POSITION OF THE SERVICES THEY OPERATE.

BEFORE POWER IS SUPPLIED TO THE AIRCRAFT MAKE CERTAIN THAT ELECTRICAL CIRCUITS UPON WHICH WORK IS IN PROGRESS ARE ISOLATED.

BEFORE PRESSURIZING HYDRAULIC SYSTEMS MAKE CERTAIN THAT HYDRAULIC SYSTEM UNDER MAINTENANCE HAS BEEN ISOLATED.

1. Equipment and Materials

ITEM	DESIGNATION
A.	Wheel Chocks
B.	Circuit Breaker Safety Clips
C.	Access Platform (2.60m) (8 ft. 7 in.)
D.	Blanking Plugs
E.	Warning Notices
F.	Safety Barriers
G.	Hydraulic Fluid Container
H. Material No. 11-002	Cleaning Agents (Ref. 20-31-00)
Referenced Procedures	
- 12-12-29, P. Block 1	Hydraulic Reservoir Replenishing
- 29-10-00, P. Block 301	Main Hydraulic Power-Pressurization/ Depressurization
- 29-14-00, P. Block 301	Hydraulic Reservoir-Pressurization/ Depressurization
- 32-12-11, P. Block 301	Main Gear Main Door (Ground Door(s) Opening)
- 32-42-36, P. Block 401	Safety Valve
- 32-42-21, P. Block 401	Normal Brake Pressure Transducer
- 32-42-48, P. Block 401	Servovalve
- 32-42-00, P. Block 501	Normal Braking

2. Procedure

A. Job Set-Up
(1)Make certain that wheel chocks are in position.
(2)On panel 9VU
- place **PARKING BRAKE** control handle in Normal released position.

(3)On panel 4VU

- make certain that landing gear control lever is in **DOWN** position and prohibit its operation by displaying a warning notice.

(4)Between First Officer's and 3rd Occupant's seats
- make certain that landing gear Free Fall extension control handle is in Normal position.

(5)Open, safety and tag the following circuit breakers

PANEL	SERVICE	IDENT.	LOCATION
133VU	HYDRAULIC/ELEC/PUMPS/WARN	4GE	331/V60
133VU	HYDRAULIC/ACCU PRESS/CTL/CARGO DOOR/PUMP	7GX	333/T51

(6)Position access platform.

(7)Position safety barriers prohibiting access to main gear door travel ranges.
WARNING : MAKE CERTAIN THAT THE DOOR TRAVEL RANGES ARE CLEAR.

(8)Open main landing gear door (Ref. 32-12-11, P. Block 301).
WARNING : WHEN DOORS ARE OPEN MAKE CERTAIN THAT SAFETY COLLARS ARE POSITIONED ON DOOR ACTUATING CYLINDERS.

(9)Depressurize Green hydraulic system (Ref. 29-10-00, P. Block 301) and prohibit its pressurization by displaying a warning notice :
- on Green hydraulic system ground connectors,
- on panel 427VU to prohibit operation of Green electric pumps (**ELEC PUMPS** pushbutton switch).

(10)Depressurize Green hydraulic reservoir (Ref. 29-14-00, P. Block 301) and prohibit its pressurization by displaying a warning notice :
- on panel 429VU to prohibit APU starting,
- on reservoir pressurization connector.

(11)Position hydraulic fluid container.

B. Removal
(Ref. Fig. 401)

(1)Remove safety valves (Ref. 32-42-36, P. Block 401).

(2)Remove servovalve (Ref. 32-42-48, P. Block 401).

(3)Remove pressure transducer (Ref. 32-42-21, P. Block 401).

(4)Remove brake servovalve manifold

R (a)Mark the position of the hydraulic lines, disconnect them and blank off
R the union and hydraulic connections.

(b)Remove cotter pins (2), nuts (3), washers (4) and bolts (5).

(c)Remove cotter pin (7), nut (6), washer (8) and bolt (9).

(d)Remove brake servovalve manifold (1).

C. Preparation of Replacement Component

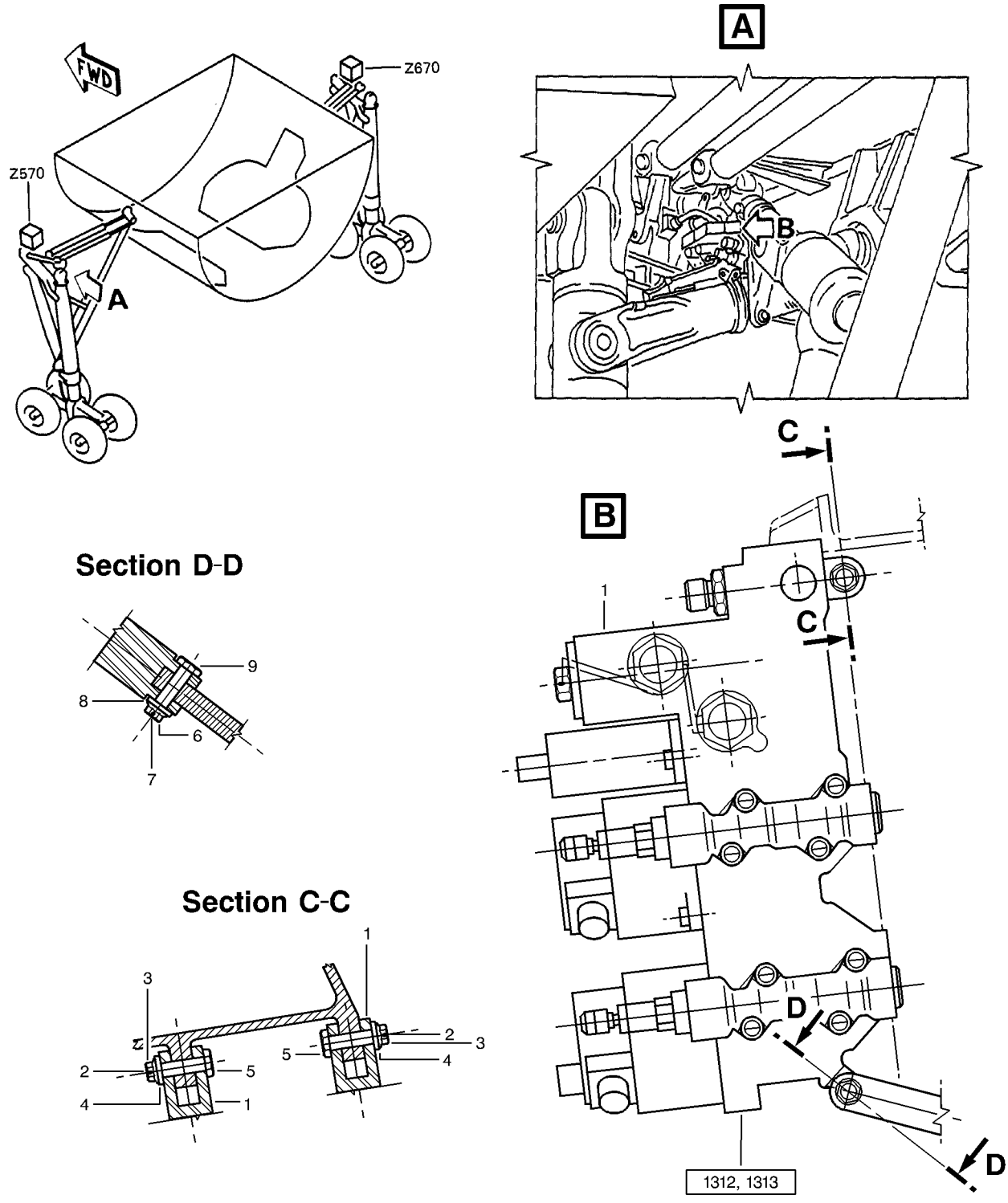
(1)Depreserve replacement manifold.

(2)Clean safety valve, servovalve accumulator and manifold interface with Cleaning Agent (Material No. 11-002), and dry with filtered compressed air.

D. Installation

(1)Position brake servovalve manifold (1).

(2)Install bolts (5), washers (4) and nuts (3).



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Normal Brake Servovalve Manifold
Figure 401

(3)Install bolt (9), washer (8) and nut (6).
(4)TORQUE nuts (6) and (3).
(5)Install new cotter pins (2) and (7).
R (6)Remove blanking plugs and connect hydraulic lines according to the
R recorded position.
NOTE : For rigid lines, hand tighten, then tighten by 1/6 turn.
(7)Install servovalve (Ref. 32-42-48, P. Block 401).
(8)Install pressure transducer (Ref. 32-42-21, P. Block 401).
(9)Install safety valve (Ref. 32-42-36, P. Block 401).

E. Test
(1)Carry out an operational test of normal braking (Ref. 32-42-00, P. Block 501).
(2)Carefully check brake manifold for leakage when pressurizing system and upon completion of test.

F. Close-Up
(1)Make certain that working area is clean and clear of tools and miscellaneous items of equipment.
(2)Remove hydraulic fluid container.
(3)Remove safety clips and tags and close circuit breakers 4GE, 7GX.
(4)Pressurize hydraulic reservoirs (Ref. 29-14-00, P. Block 301).
WARNING : MAKE CERTAIN THAT DOOR TRAVEL RANGES ARE CLEAR.
(5)Close main landing gear door (Ref. 32-12-11, P. Block 301).
(6)Replenish hydraulic reservoirs as necessary (Ref. 12-12-29, P. Block 1).
(7)Remove warning notice.
(8)Close access doors, remove access platform and safety barriers.
(9)Remove all ground handling and maintenance equipment standard and special tools, together with ground power and replenishing equipment, all access equipment and miscellaneous items.

NORMAL BRAKE MASTER VALVE 89GG (90GG) - REMOVAL/INSTALLATION

R **WARNING** : CHECK THAT THE LANDING GEAR GROUND SAFETIES INCLUDING WHEEL CHOCKS ARE IN POSITION.

BEFORE APPLYING OR RELIEVING HYDRAULIC SYSTEM PRESSURE, MAKE CERTAIN THAT THE TRAVEL RANGES OF THE CONTROL SURFACES ARE CLEAR.

BEFORE PRESSURIZING HYDRAULIC SYSTEMS, CHECK THAT ALL CONTROLS ARE SET TO CORRESPOND WITH THE ACTUAL POSITION OF THE SERVICES THEY OPERATE.

BEFORE PRESSURIZING HYDRAULIC SYSTEMS, MAKE CERTAIN THAT HYDRAULIC SYSTEM UNDER MAINTENANCE HAS BEEN ISOLATED.

BEFORE POWER IS SUPPLIED TO THE AIRCRAFT, MAKE CERTAIN THAT ELECTRICAL CIRCUIT UPON WHICH WORK IS IN PROGRESS ARE ISOLATED.

1. Equipment and Materials

ITEM	DESIGNATION
A. 99A29001006000	Unit - Topping Up, Hydraulic Tank
B. 97A29102035000	Connector - Pressurizing, Hydraulic Tank
C. 97A29102062000	Connector - Depressurizing, Hydraulic Tank
D.	Wheel Chocks
E.	Safety Barriers
F.	Warning Notices
G.	Blanking Plugs
H.	Hydraulic Fluid Container
J.	Circuit Breaker Safety Clips
K.	Access Platform 2,60 m (8 ft. 7 in.)
L.	Lockwire
M. Material No. 11-002	Cleaning Agents (Ref. 20-31-00)
Referenced Procedures	
- 12-12-29, P. Block 1	Hydraulics
- 29-10-00, P. Block 301	Main Hydraulic Power - Pressurization/Depressurization
- 29-14-00, P. Block 301	Hydraulic Reservoir Pressurizing System
- 32-12-11, P. Block 301	Main Gear Main Doors - (Ground Door(s) Opening)
- 32-42-00, P. Block 301	Normal Braking
- 32-42-00, P. Block 501	Normal Braking

2. Procedure

A. Job Set-Up
(1)On panel 4VU
- make certain that landing gear control lever is in **DOWN** position and prohibit its operation by displaying a warning notice.

(2)Between First Officer's and Third Occupant's seats
- make certain that landing gear Free Fall extension control lever is in Normal position.

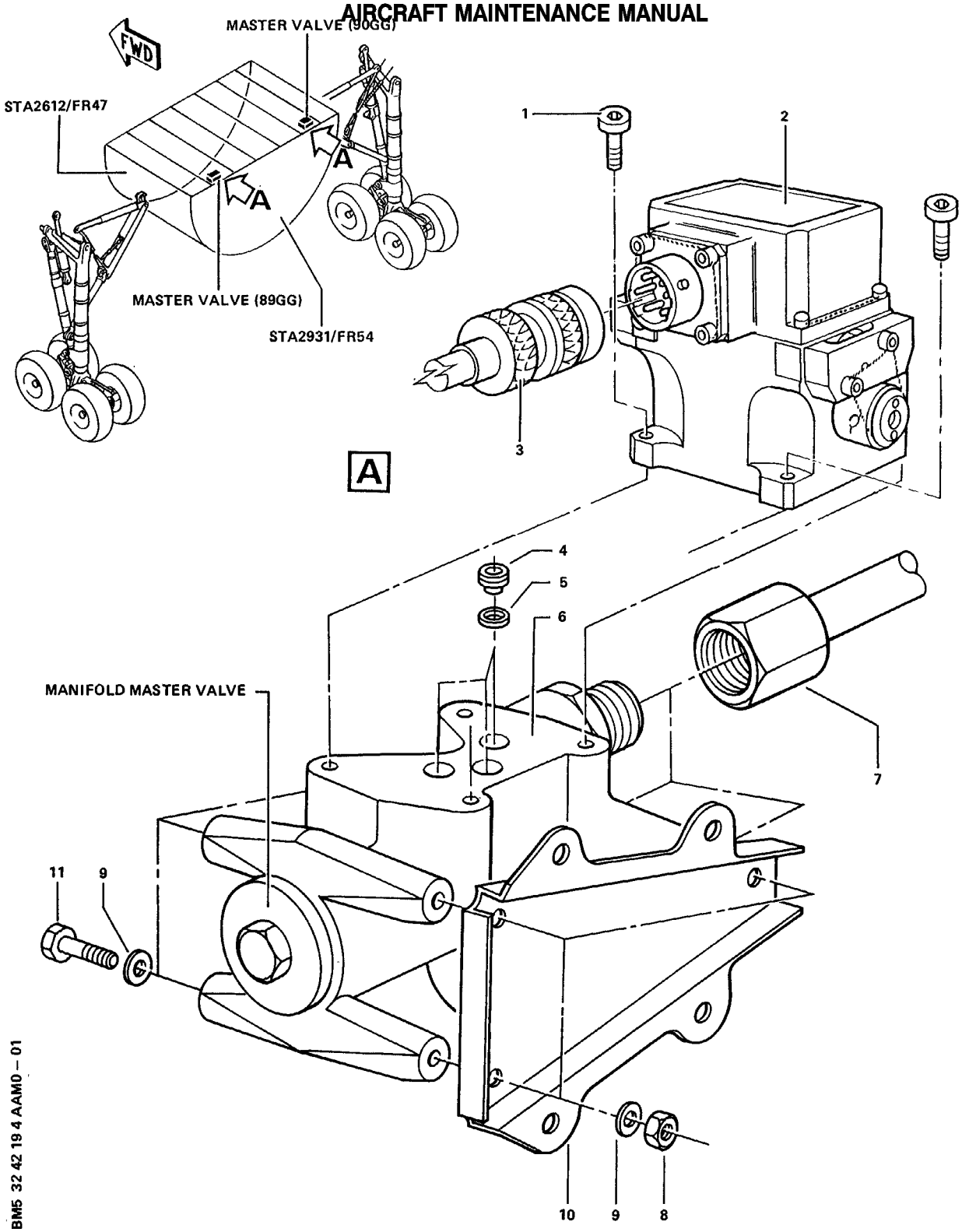
(3)Make certain that wheel chocks are in position.
(4)Position safety barriers prohibiting access to gear door travel ranges.
(5)Position access platform.
WARNING : MAKE CERTAIN THAT DOOR TRAVEL RANGES ARE CLEAR.
(6)Open main gear door (Ref. 32-12-11, P. Block 301) :
- Left door for removal of left master valve (89GG)
- Right door for removal of right master valve (90GG)
WARNING : WHEN DOORS ARE OPEN, MAKE CERTAIN THAT SAFETY COLLARS ARE POSITIONED ON DOOR ACTUATING CYLINDERS.
(7)Depressurize Green hydraulic system (Ref. 29-10-00, P. Block 301) and prohibit its pressurization by displaying a warning notice on
- Green hydraulic system ground connectors
- panel 427VU, on Green ELEC PUMPS control pushbutton switch.
(8)Depressurize Green hydraulic reservoir (Ref. 29-14-00, P. Block 301). Prohibit its pressurization by displaying a warning notice on
- panel 429VU to prohibit APU starting
- reservoir pressurization connector.
(9)Open, safety and tag the following circuit breakers :

PANEL	SERVICE	IDENT.	LOCATION
133VU	HYDRAULIC/BRAKES/FAN/CTL	17GS	331/V53
133VU	HYDRAULIC/TIRE/PRESS	1GV	333/T54
133VU	HYDRAULIC/BRAKES/TEMP/WARN	17GW	331/V54
133VU	HYDRAULIC/BRAKES/TEMP/DET/UNIT	1GW	335/R58
133VU	HYDRAULIC/BRAKES SYSTEM/CTL UNIT/ CTL &/WARN	5GG	333/T56
133VU	HYDRAULIC/BRAKES SYSTEM/CTL UNIT/ LAND/RECOVERY/SUPPLY	98GG	333/T55
133VU	HYDRAULIC/BRAKES SYSTEM/CTL UNIT/NORM	4GG	331/V55
133VU	HYDRAULIC/BRAKES SYSTEM/CTL UNIT/SUPPLY	42GG	331/V56
133VU	HYDRAULIC/BRAKES SYSTEM/CTL UNIT/NORM	2GG	332/U55
133VU	HYDRAULIC/BRAKES SYSTEM/CTL UNIT/SUPPLY	41GG	332/U56
133VU	HYDRAULIC/AUTO BRK	95GG	335/R57
133VU	HYDRAULIC/ELEC/PUMPS/WARN	4GE	331/V60

(10)Position hydraulic fluid container under master valve to be removed.

B. Removal
(Ref. Fig. 401)

R (1)Removal of master valve
R (a)Disconnect electrical connector (3), cap connector (3) and connector on master valve (2).
R (b)Remove the 4 screws (1) attaching master valve (2) to mounting plate (6).
R (c)Remove master valve (2).
R (d)Discard seals (4) and rings (5).
R (e)Blank open ports.
R (f)Install removed master valve (2) on a clean storage plate.
R (2)Removal of manifold master valve
R (a)Disconnect hydraulic line (7), and blank open ports.



Normal Brake Master Valve - Removal/Installation
Figure 401

R

(b)Keep the mounting plate (6) and remove the nuts (8) the washers (9) and the screws (11).
(c)Remove the mounting plate (6) from the support (10).
WARNING : TAKE ALL NECESSARY PRECAUTIONS TO PREVENT CONTAMINATION THROUGH PORTS.

C. Preparation of Replacement Component
(1)Depreserve replacement master valve (2) and remove external protections and storage plate.
(2)Remove and retain all the plugs, the 4 screws and the storage plate.
NOTE : These items are to be installed on removed component.
(3)Clean master valve (2) and mounting plate (6) mating surfaces using Material No. 11-002.
Dry with filtered compressed air.
(4)Check that electrical connector is not blanked.
WARNING : TAKE ALL NECESSARY PRECAUTIONS TO PREVENT CONTAMINATION THROUGH PORTS.

D. Installation
(1)Installation of manifold master valve
(a)Smear with grease the threadings of the unions to which hydraulic lines (7) are to be connected.
(b)Install with care mounting plate (6) on support (10).
(c)Install washers (9) and screws (11), washers (9) and nuts (8) and tighten.
(d)Connect hydraulic lines (7) to mounting plate (6) unions.
(2)Installation of master valve
(a)Make certain that seals (4) and rings (5) are correctly positioned in the grooves of replacement master valve (2) ports.
(b)Position master valve (2) on mounting plate (6) taking care to engage locating stud in its recess.
(c)Secure master valve (2) to mounting plate (6) using screws (1).
R TORQUE to between 0.35 and 0.45 m.daN (2.58 and 3.31 lbf.ft.).
(d)Remove blanking cap and connect electrical connector (3).
(e)Bleed Normal braking system (Ref. 32-42-00, P. Block 301).

E. Tests
(1)Perform a functional test of Maximum pressure delivered to brakes (Ref. 32-42-00, P. Block 501).
Carefully check master valve for external leakage during initial pressurization and upon completion of tests.

F. Close-Up
(1)Make certain that working area is clean and clear of tools and miscellaneous items of equipment.
(2)Remove hydraulic fluid container.
(3)Remove safety clips and tags and close circuit breaker 4GE and 17GS, 1GV, 17GW, 1GW, 5GG, 98GG, 4GG, 42GG, 2GG, 41GG, 95GG on panel 133VU.
(4)Replenish Green hydraulic reservoir, if necessary (Ref. 12-12-29, P. Block 1).
(5)Pressurize Green hydraulic reservoir (Ref. 29-14-00, P. Block 301).

(6)Close main gear doors (Ref. 32-12-11, P. Block 301).
(7)Remove warning notices.
(8)Remove safety barriers and access platform.
(9)Remove all ground handling and maintenance equipment, standard and special tools, together with ground power, replenishing equipment, all access equipment and miscellaneous items.

NORMAL BRAKE PRESSURE TRANSDUCER (91 TO 94GG) - REMOVAL/INSTALLATION

WARNING : CHECK THAT THE LANDING GEAR GROUND SAFETIES INCLUDING WHEEL CHOCKS ARE IN POSITION.
BEFORE APPLYING OR RELIEVING HYDRAULIC SYSTEM PRESSURE, MAKE CERTAIN THAT THE TRAVEL RANGES OF THE CONTROL SURFACES ARE CLEAR.
BEFORE PRESSURIZING HYDRAULIC SYTEMS, CHECK THAT ALL CONTROLS ARE SET TO CORRESPOND WITH THE ACTUAL POSITION OF THE SERVICES THEY OPERATE.
BEFORE POWER IS SUPPLIED TO THE AIRCRAFT MAKE CERTAIN THAT ELECTRICAL CIRCUITS UPON WHICH WORK IS IN PROGRESS ARE ISOLATED.
BEFORE PRESSURIZING HYDRAULIC SYSTEMS, MAKE CERTAIN THAT HYDRAULIC SYSTEM UNDER MAINTENANCE HAS BEEN ISOLATED.

1. Equipment and Materials

ITEM	DESIGNATION
A.	Wheel Chocks
B.	Warning Notices
C.	Blanking Plugs
D.	Container
E.	Circuit Breaker Safety Clips
F.	Access Platform (2.60 m) (8 ft. 7 in.)
G. Material No. 11-002	Cleaning Agents (Ref. 20-31-00)
Referenced Procedures	
- 12-12-29, P. Block 1	Hydraulics
- 29-10-00, P. Block 301	Main Hydraulic Power - Pressurization/ Depressurization
R - 29-14-00, P. Block 301	Hydraulic Reservoir Pressurizing System
- 32-12-11, P. Block 301	Main Gear Main Door (Ground Door(s) Opening)
- 32-42-00, P. Block 301	Normal Braking
R - 32-42-00, P. Block 501	Normal Braking
- 32-42-72, P. Block 401	Brake System Control Unit

2. Procedure

A. Job Set-Up
(1)On panel 4VU
- make certain that landing gear control lever is in **DOWN** position and prohibit its operation by displaying a warning notice.

(2)On mechanical center pedestal 9VU
- make certain that **PARKING BRAKE** control handle is in **NORMAL** (released) position and prohibit its operation by displaying a warning notice

(3)Between First Officer's and Third Occupant's seats
- make certain that landing gear Free Fall extension control handle is in Normal position.

(4)Position safety barriers prohibiting access to gear door travel ranges.

(5)Position access platform
WARNING : MAKE CERTAIN THAT THE DOOR TRAVEL RANGES ARE CLEAR.

(6)Open left main gear door (Ref. 32-12-11, P. Block 301)

WARNING : WHEN DOORS ARE OPEN, MAKE CERTAIN THAT SAFETY COLLARS ARE POSITIONED ON DOOR ACTUATING CYLINDERS.

(7)Depressurize Green hydraulic system (Ref. 29-10-00, P. Block 301) and prohibit its pressurization by displaying a warning notice :
- on Green hydraulic system ground connectors
- on panel 427VU to prohibit operation of Green electric pumps (ELEC PUMPS pushbutton switch)

(8)Depressurize Green hydraulic reservoir (Ref. 29-14-00, P. Block 301) and prohibit its pressurization by displaying a warning notice :
- on panel 429VU to prohibit APU starting
- on reservoir pressurization connector

(9)Open, safety and tag the following circuit breakers :

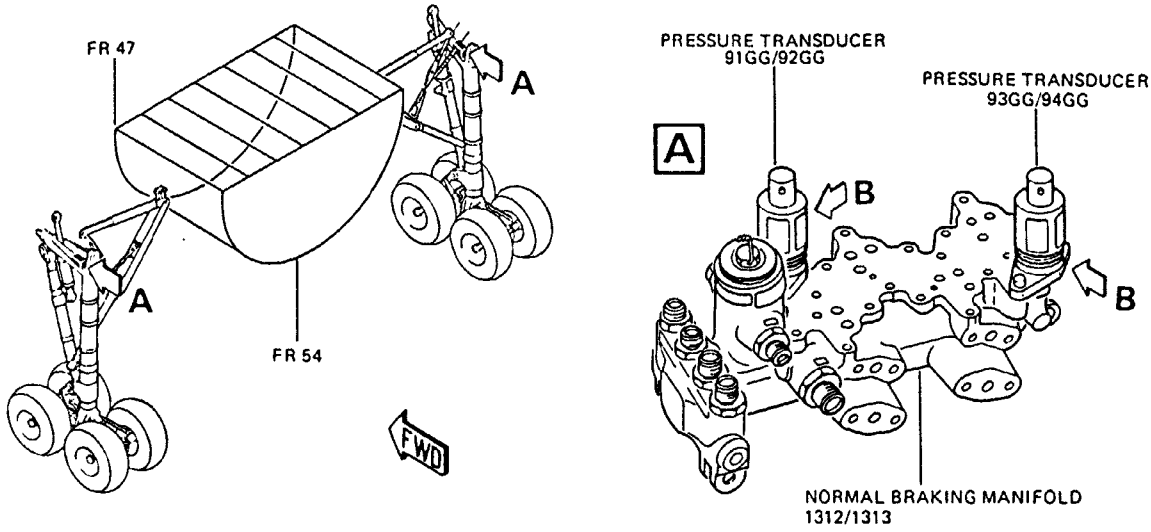
PANEL	SERVICE	IDENT.	LOCATION
133VU	HYD/BRAKES SYSTEM/CTL UNIT/CTL &/WARN	5GG	333/T56
133VU	HYD/BRAKES SYSTEM/CTL UNIT/LAND/ RECOVERY/SUPPLY	98GG	333/T55
133VU	HYD/BRAKES SYSTEM/CTL UNIT/NORM	4GG	331/V55
133VU	HYD/BRAKES SYSTEM/CTL UNIT/SUPPLY	42GG	331/V56
133VU	HYD/BRAKES SYSTEM/CTL UNIT/NORM	2GG	332/U55
133VU	HYD/BRAKES SYSTEM/CTL UNIT/SUPPLY	41GG	332/U56
133VU	HYD/AUTO BRK	95GG	335/R57
133VU	HYD/ELEC/PUMPS/WARN	4GE	331/V60

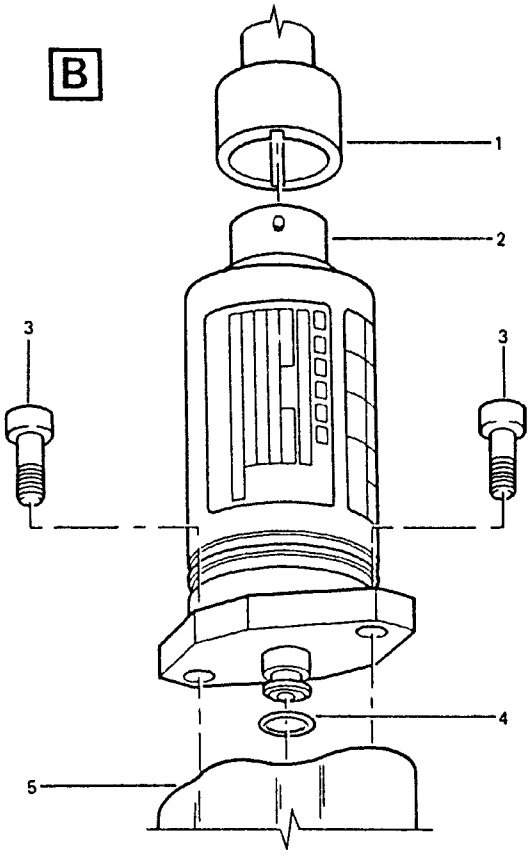
(10)Position hydraulic fluid container

B. Removal
(Ref. Fig. 401)
(1)Disconnect electrical connector (1) and install protective caps on connector (1) and pressure transducer (2).
(2)Remove screws (3) from pressure transducers (2) on brake manifold (5).
(3)Remove pressure transducer (2)
(4)Discard seal (4)
(5)Blank off orifices on pressure transducer and brake manifold with blanking plugs.
(6)Mount pressure transducer (2) on a clean storage plate
CAUTION : TAKE ALL NECESSARY PRECAUTIONS TO PREVENT CONTAMINATION THROUGH ORIFICES.

C. Preparation of Replacement Component
(1)Depreserve replacement pressure transducer (2) and remove protective coverings and storage plate
(2)Clean pressure transducer (2), brake manifold (5) and contact surfaces with material No. 11-002 and dry with filtered compressed air.
(3)Check that electrical connector is not blanked
CAUTION : TAKE ALL NECESSARY PRECAUTIONS TO PREVENT CONTAMINATION THROUGH ORIFICES.

D. Installation
(1)Make certain that seal (4) is in correct condition and correctly





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Normal Brake Pressure Transducer
Figure 401

installed on pressure transducer (2).
(2)Install pressure transducer (2) on normal braking manifold (5).
(3)Install screws (3). TORQUE screws (3) to 0.15 + 0.05 + 0 m.daN (1.11 + 0.37 + 0 lbf.ft.).
(4)Remove protective caps and connect electrical connector (1).
(5)Bleed Normal braking system (Ref. 32-42-00, P. Block 301).

E. Test
(1)Perform a Normal braking operational test (Ref. 32-42-00, P. Block 501 Para. 2.D.(4))
NOTE : External sealing of replacement pressure transducer must be checked during initial pressurization and upon competition of tests.
(2)Perform a BITE TEST of BSCU (Ref. 32-42-72, P. Block 401).

F. Close-Up
(1)Make certain that working area is clean and clear of tools and miscellaneous items of equipment.
(2)Remove hydraulic fluid container
(3)Check hydraulic fluid level in Green hydraulic reservoir and replenish if necessary (Ref. 12-12-29, P. Block 1)
(4)Pressurize Green hydraulic reservoir (Ref. 29-14-00, P. Block 301)
(5)Remove safety clips and tags and close circuit breaker 4GE and BRAKES circuit breakers GG.
(6)Remove safety barriers and close left main landing gear door (Ref. 32-12-11, P. Block 301).
(7)Remove warning notices
(8)Remove access platform
(9)Remove all ground handling and maintenance equipment, standard and special tools, together with ground power and replenishing equipment, all access equipment and miscellaneous items.

MANIFOLD-MASTER VALVE 1362 (1363) - SERVICING

WARNING : CHECK THAT THE LANDING GEAR GROUND SAFETIES INCLUDING WHEEL CHOCKS ARE IN POSITION.
BEFORE APPLYING OR RELIEVING HYDRAULIC SYSTEM PRESSURE, MAKE CERTAIN THAT THE TRAVEL RANGES OF THE CONTROL SURFACES ARE CLEAR.
BEFORE PRESSURIZING HYDRAULIC SYSTEMS, CHECK THAT ALL CONTROLS ARE SET TO CORRESPOND WITH THE ACTUAL POSITION OF THE SERVICES THEY OPERATE.
BEFORE PRESSURIZING HYDRAULIC SYSTEMS, MAKE CERTAIN THAT HYDRAULIC SYSTEM UNDER MAINTENANCE HAS BEEN ISOLATED.
BEORE POWER IS SUPPLIED TO THE AIRCRAFT, MAKE CERTAIN THAT ELECTRICAL CIRCUIT UPON WHICH IS IN PROGRESS ARE ISOLATED.

1. Equipment and Materials

ITEM	DESIGNATION
A. 99A29001006000	Unit - Topping Up, Hydraulic Tank
B. 97A29102035000	Connector - Pressurizing, Hydraulic Tank
C. 97A29102062000	Connector - Depressurizing, Hydraulic Tank
D.	Wheel Chocks
E.	Safety Barriers
F.	Warning Notices
G.	Blanking Plugs
H.	Hydraulic Fluid Container
J.	Circuit Breaker Safety Clips
K.	Access Platform 2,60 m (8 ft. 7 in.)
L.	Lockwire
M. Material No. 11-002	Cleaning Agents (Ref. 20-31-00)
Referenced Procedures	
- 12-12-29, P. Block 1	Hydraulic Tank Replenishing
- 24-41-00, P. Block 301	AC External Power Control
- 29-10-00, P. Block 301	Main Hydraulic Power - Pressurization/Depressurization
- 29-14-00, P. Block 301	Hydraulic Reservoir Pressurizing System
- 32-12-11, P. Block 301	Main Gear Main Doors - (Ground Door(s) Opening
- 32-42-00, P. Block 501	Normal Braking
- 24-41-00, P. Block 301	AC External Power Control

2. Procedure

A. Job Set-Up
(1)On panel 4VU
- make certain that landing gear control lever is in **DOWN** position and prohibit its operation by displaying a warning notice.

(2)Between First Officer's and Third Occupant's seats
- make certain that landing gear Free Fall extension control lever is in Normal position.

(3)Make certain that wheel chocks are in position.
(4)Position safety barriers prohibiting access to gear door travel ranges.
(5)Position access platform.
WARNING : MAKE CERTAIN THAT DOOR TRAVEL RANGES ARE CLEAR.

(6)Open main gear door (Ref. 32-12-11, P. Block 301) :
- Left door for removal of left braking master valve manifold (1362)
- Right door for removal of right braking master valve manifold (1363).

WARNING : WHEN DOORS ARE OPEN, MAKE CERTAIN THAT SAFETY COLLARS ARE POSITIONED ON DOOR ACTUATING CYLINDERS.

(7)Depressurize Green hydraulic system (Ref. 29-10-00, P. Block 301) and prohibit its pressurization by displaying a warning notice on :
- Green hydraulic system ground connectors
- panel 427VU, on Green ELEC PUMPS control pushbutton switch.

(8)Depressurize Green hydraulic reservoir (Ref. 29-14-00, P. Block 301). Prohibit its pressurization by displaying a warning notice on :
- panel 429VU to prohibit APU starting
- reservoir pressurization connector.

(9)Open, safety and tag the following circuit breakers :

PANEL	SERVICE	IDENT.	LOCATION
128VU	BRAKES		Line 804
128VU	ELEC/PUMPS/WARN/& CTL	4GE	801/R70

(10)Position hydraulic fluid container under master valve to be removed.
(11)Energize the aircraft electrical network (Ref. 24-41-00, P. Block 301).
(12)Make certain that electronics rack ventilation is correct.

WARNING : MAKE CERTAIN THAT GREEN HYDRAULIC SYSTEM IS NOT SUPPLIED.

(Ref. Fig. 301)

B. Removal

(1)Cut and remove lockwire between plug (5) and body (1).
(2)Unscrew plug (5).
(3)Discard packing (4) and retainer (6) (for P/N A87881-2 and -3).
(4)Remove filter element (3) from body (1). Discard packing (2).

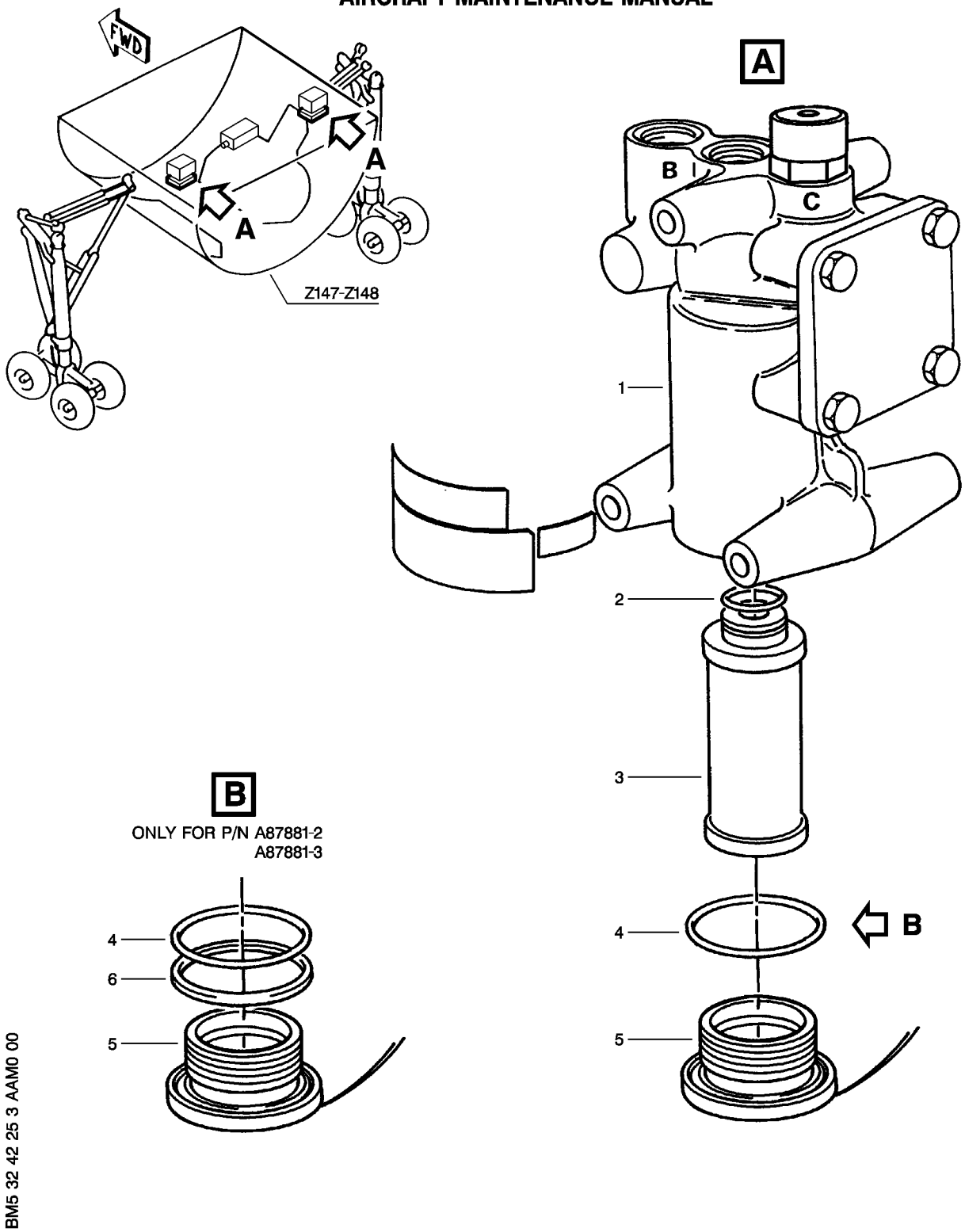
NOTE : If filter element (3) is reusable and if it cannot be cleaned immediately after removal, immerse it in hydraulic fluid after having blanked its outlet port.

(5)Make certain that retainer (6) is in correct condition (for P/N A87881-2 and -3).

C. Installation

CAUTION : INSTALL NEW OR RECONDITIONING FILTER ELEMENT. FOR A REUSABLE FILTER ELEMENT, CLEANING MUST BE PERFORMED IN AN ULTRASONIC TANK AND BE FOLLOWED BY A PERFORMANCE TEST. BEFORE INSTALLATION NEW O-RINGS MUST BE COATED WITH HYDRAULIC FLUID.

(1)Install new packing (2) on filter element (3).
(2)Install filter element (3) on body (1), previously cleaned then dried off with clean and dry compressed air.
(3)Install new packing (4) and retainer (6) (for P/N A87881-2 and -3).
R (4)TORQUE plug (5) to between 3 m.daN and 3.5 m.daN (22.1 lbf.ft and
R 25.8 lbf.ft.) or TORQUE to between 10 m.daN and 10.5 m.daN (73.74 and 77.43 lbf.ft) for P/N A87881-2 and -3).
(5)Wirelock plug (5).



Master Valve Manifold
Figure 301

D. Tests
(1)Perform a functionel test of maximum pressure delivered to brakes (Ref. 32-42-00, P. Block 501).
Carefully check master valve for external leakage during initial pressurization and upon completion of tests.

E. Close-Up
(1)Make certain that working area is clean and clear of tools and miscellaneous items of equipment.
(2)Remove hydraulic fluid container.
(3)Remove safety clips and tags and close circuit breaker 4GE on panel 128VU.
(4)Replenish Green hydraulic reservoir, if necessary (Ref. 12-12-29, P. Block 1).
(5)Pressurize Green hydraulic reservoir (Ref. 29-14-00, P. Block 301).
(6)Close main gear doors (Ref. 32-12-11, P. Block 301).
(7)Remove warning notices.

WARNING : CHECK THAT THE LANDING GEAR GROUND SAFETIES INCLUDING WHEEL CHOCKS ARE IN POSITION.
BEFORE APPLYING OR RELIEVING HYDRAULIC SYSTEM PRESSURE, MAKE CERTAIN THAT THE TRAVEL RANGES OF THE CONTROL SURFACES ARE CLEAR.
BEFORE PRESSURIZING HYDRAULIC SYSTEMS, CHECK THAT ALL CONTROLS ARE SET TO CORRESPOND WITH THE ACTUAL POSITION OF THE SERVICES THEY OPERATE.
BEFORE POWER IS SUPPLIED TO THE AIRCRAFT MAKE CERTAIN THAT ELECTRICAL CIRCUITS UPON WHICH WORK IS IN PROGRESS ARE ISOLATED.
BEFORE PRESSURIZING HYDRAULIC SYSTEM MAKE CERTAIN THAT HYDRAULIC SYSTEM UNDER MAINTENANCE HAS BEEN ISOLATED.

WARNING : ALLOW BRAKES AND WHEELS TO COOL BEFORE APPROACHING LANDING GEAR. DO NOT APPLY WATER OR OTHER LIQUID OR GASEOUS FIRE EXTINGUISHANT ON TO A HOT WHEEL OR BRAKE UNIT, AN EXPLOSION COULD RESULT.

1. Reason for the Job

A. Removal/Installation of Brakes

B. Removal/Installation of Brake Temperature Sensor

C. Removal/Installation of Axle Protective Sleeve

2. Brakes

A. Equipment and Materials

	ITEM	DESIGNATION
	A. D46229	Extractor
	B. M21835	Handling Tool
R	or	
R	U21832000	Handling Tool
	C.	Brake Lifting Equipment
	D. F46753-1000	Axles Thread Protector
	E. M21924	Fixture - Mounting, Brake
	F. M21859	Lifting Tool
	G.	Access Platform 2.6m (8ft. 7in.)
	H.	Corrosion Resistant Steel Lockwire Dia. 0.8 mm
	J.	Wheel Chocks
	K.	Warning Notices
	L.	Circuit Breaker Safety Clips
	M.	Safety Barriers
	N. Material No. 04-001	Common Greases (Ref. 20-31-00)
	P. Material No. 04-004	Common Greases (Ref. 20-31-00)
	Q. Material No. 04-022	Common Greases (Ref. 20-31-00)
	R. Material No. 11-002	Cleaning Agents (Ref. 20-31-00
	S. Material No. 02-003	Hydraulic Fluids (Ref. 20-31-00)
	Referenced Procedures	
	- 12-37-32, P. Block 1	Wheel Replacement

ITEM	DESIGNATION
- 29-10-00, P. Block 301	Main Hydraulic Power - Pressurization/ Depressurization
- 32-12-11, P. Block 301	Main Gear Main Door - (Ground Door(s) Opening)
- 32-42-00, P. Block 301	Normal Braking
- 32-43-00, P. Block 301	Alternate Braking with Anti Skid
- 32-42-00, P. Block 501	Normal Braking
- 32-43-00, P. Block 501	Alternate Braking with Anti Skid
- 32-47-00, P. Block 501	Brake System Temperature

B. Procedure

(1)Job Set-Up
(a)Make certain that wheel chocks are in position.
(b)Make certain that **PARKING BRAKE** control handle is released. Install warning notice in flight compartment prohibiting operation of brakes.
(c)Open, safety and tag the following circuit breakers :

PANEL	SERVICE	IDENT.	LOCATION
133VU	HYDRAULIC/TIRE/PRESS	1GV	333/T54
133VU	HYDAULIC/BRAKES/TEMP/WARN	17GW	331/V54
133VU	HYDAULIC/BRAKES/TEMP/DET/UNIT	1GW	335/R58
133VU	HYDRAULIC/BRAKES SYSTEM/CTL UNIT/CTL &/ WARN	5GG	333/T56
133VU	HYDRAULIC/BRAKES SYSTEM/CTL UNIT/LAND/	98GG	333/T55
133VU	RECOVERY/SUPPLY		
133VU	HYDRAULIC/BRAKES SYSTEM/CTL UNIT/NORM	4GG	331/V55
133VU	HYDRAULIC/BRAKES SYSTEM/CTL UNIT/SUPPLY	42GG	331/V56
133VU	HYDRAULIC/BRAKES SYSTEM/CTL UNIT/NORM	2GG	332/U55
133VU	HYDRAULIC/BRAKES SYSTEM/CTL UNIT/SUPPLY	41GG	332/U56
133VU	HYDRAULIC/AUTO BRK	95GG	335/R57
133VU	HYDRAULIC/ELEC/PUMPS/WARN	4GE	331/V60
133VU	HYDRAULIC/ACCU PRESS/CTL & /CARGO DOOR/ PUMP	7GX	333/T51

(d)On panel 4VU
- make certain that landing gear control lever is in **DOWN** position and prohibit its operation by displaying a warning notice.

(e)Position safety barriers prohibiting access to left main landing gear door travel range.
(f)Position access platform.
WARNING : MAKE CERTAIN THAT DOOR TRAVEL RANGES ARE CLEAR.
(g)Open left main landing gear door (Ref. 32-12-11, P. Block 301).
WARNING : WHEN DOOR IS OPEN, MAKE CERTAIN THAT SAFETY COLLAR IS POSITIONED ON DOOR ACTUATING CYLINDER.
(h)Depressurize Green hydraulic system (Ref. 29-10-00, P. Block 301) and prohibit its pressurization by displaying a warning notice :

- on Green hydraulic system ground connectors
- on panel 427VU, to prohibit operation of Green electric pumps (ELEC PUMPS pushbutton switch).

(j)Depressurize Yellow hydraulic system (Ref. 29-10-00, P. Block 301) and prohibit its pressurization by displaying a warning notice :
- on Yellow hydraulic system ground connectors
- on panel 427VU to prohibit energization of Yellow power transfer unit (right PTU pushbutton switch)

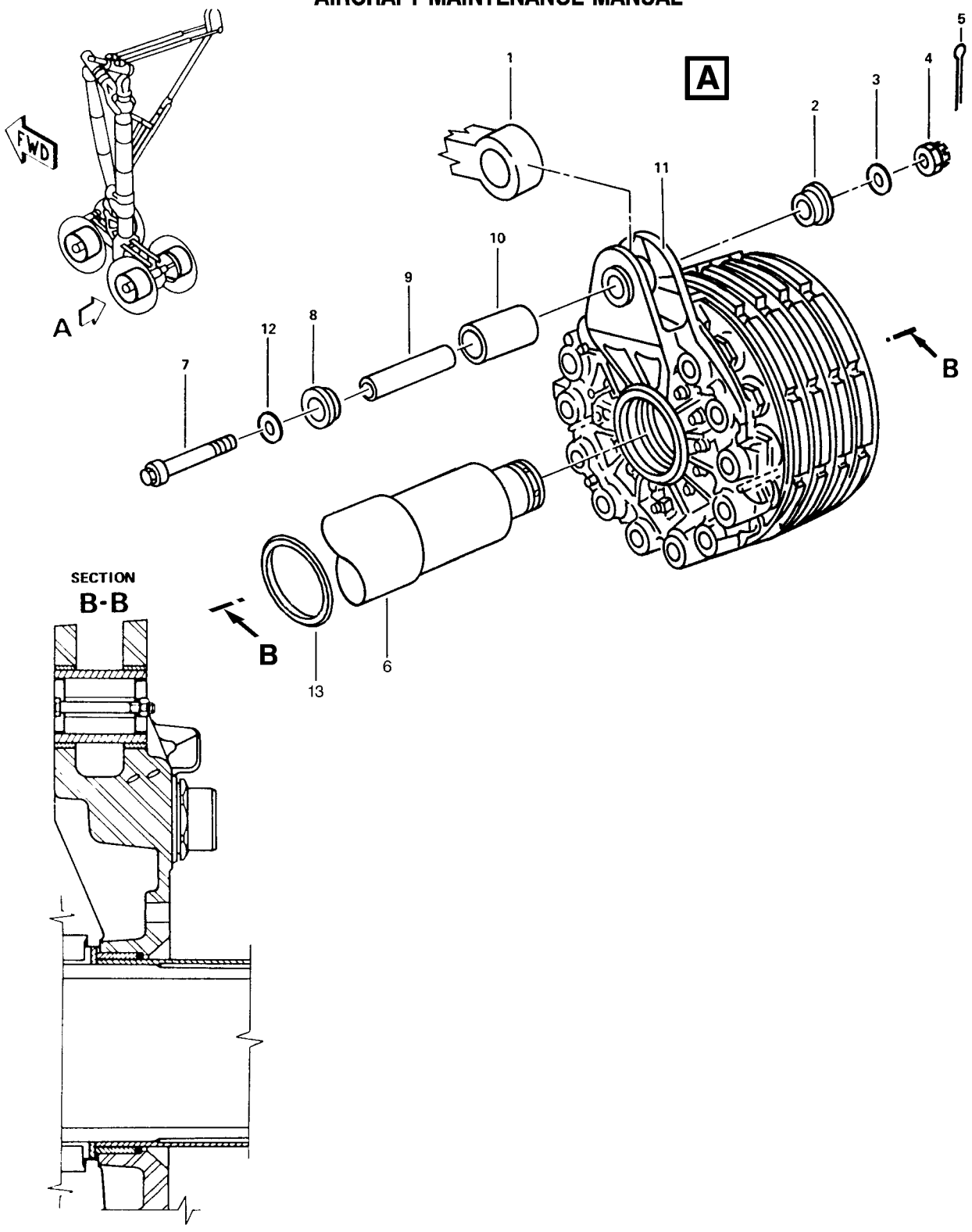
(k)Using wheel change jack, jack up axle concerned.
(l)Remove wheel to gain access to brake unit (Ref. 12-37-32, P. Block 1).

(2)Removal
(Ref. Fig. 401)
(Ref. Fig. 402)
(a)Disconnect electrical connector from brake temperature sensor.
(b)Free clamp (25) attached by means of bolt (31), washer (26) and nut (27).
(c)Install axle thread protector F46753-1000.
NOTE : Slightly grease outer circumference of axle thread protector with Material No. 04-004 or Material No. 04-022.
NOTE : Make certain that the two systems are depressurized by opening bleed valves.
(d)Remove hydraulic lines from supports (20) and (22).
1 Remove pin (17) to free clamp block (21) from support (20).
NOTE : Attach pin (17) to support (20) using steel lockwire.
(e)Disconnect the two supply hoses at self sealing couplings.
(f)Disconnect brake bar (1) from brake unit (11).
1 Remove cotter pin (5), nut (4), washer (3), bolt (7) and washer (12).
2 Remove caps (8) and (2), spacer (9) and hollow shaft (10).
NOTE : Should shaft extraction be difficult, use tool D46229.
(g)Install handling tool M21835 or U21832000.
(h)Remove brake unit using handling trolley.
Position brake unit on lifting tool M21859 or if necessary rest it on hydraulic crown.
CAUTION : HANDLE BRAKE UNIT WITH CARE TO AVOID DAMAGE TO CARBON DISC PROTECTION.
IN NO CASES, BRAKE UNIT SHALL BEAR ON ITS HEAT PACK.

R Remove axle protective sleeve and spacer for inspection (Ref. Para 5.).
Visually check bogie beam bushing flange for cracks and corrosion.
R Prepare and install sleeve and spacer (Ref. Para 5.).

(3)Preparation of replacement component
NOTE : The replacement brake unit is filled with hydraulic fluid (Ref. 20-31-00).
NOTE : Do not mix Material No. 04-004 with Material No. 04-022. You can use Material No. 04-022 as an alternative to Material No. 04-004. Clean and degrease the parts before you use Material No. 04-022.

(4)Precautions before installation
(a)On removed brake unit remove :
- support (28), bolts (30) and washers (29)
- support (22), bolts (23) and washers (24)



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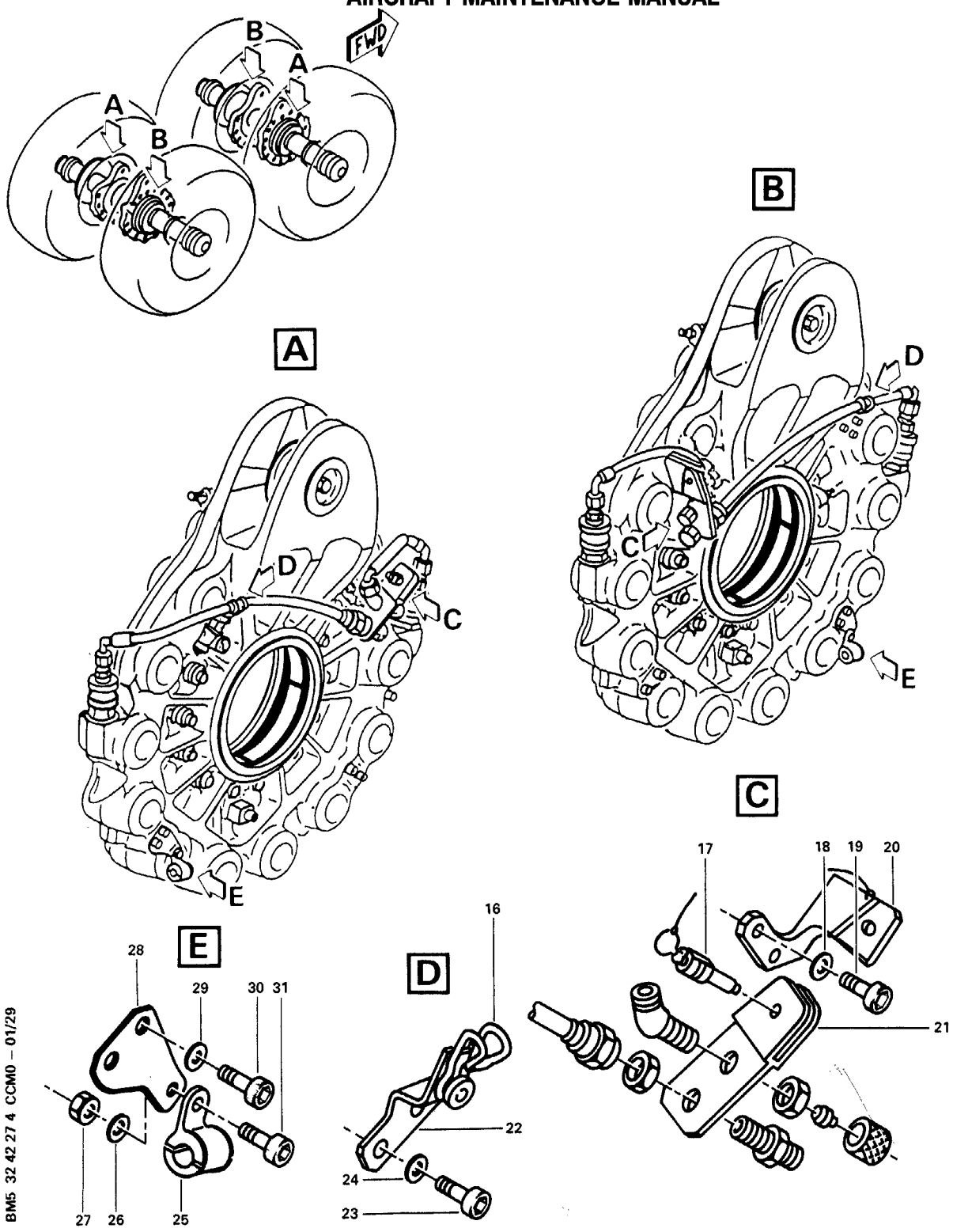
Brake Unit
Figure 401

R



Brake Unit - Details
Figure 402

- support (20), bolts (19) and washers (18).

(b)On replacement brake unit installed on lifting tool M21859 and fitted with mounting fixture M21924 :

1 Install supports (28), (22) and (20) and attach with bolts and washers provided on brake unit (TORQUE to between 1.3 and 1.5 m.daN (9.59 and 11.06 lbf. ft.).

2 Safety bolts two by two with lockwire.

3 Check that seal is correctly installed in bush groove, torque arm side.

4 Grease brake bearing surfaces and corresponding circumference on axle protector with Material No. 04-004 or Material No. 04-022.

5 Remove brake bar attachment parts and install handling tool M21835 or U21832000.

NOTE : If the new brake unit is not fitted with the male parts of the self sealing coupling, remove them from the removed brake unit and install them on the new one.

(5)Installation

NOTE : Do not mix Material No. 04-004 with Material No. 04-022. You can use Material No. 04-022 as an alternative to Material No. 04-004. Clean and degrease the parts before you use Material No. 04-022.

(a)Make certain that axle protective sleeve (6) and spacer (13) are installed on wheel axle.

(b)Carefully grease outer circumference of axle protective sleeve (6) with
R Material No. 04-001.
R NOTE : In this location only, you can use Material No. 04-004 or
R Material No. 04-022 as an alternative to Material No. 04-001.
R NOTE : Do not mix these greases.

(c)Grease inner diameter of brake bearings and brake bar (1) attachment bearings.

(d)Install brake unit (11) using handling tool M21835 or U21832000 and handling trolley. Lubricate brake unit (Ref. 12-22-32, P. Block 1).

(e)Remove handling tool M21835 or U21832000.

(f)Connect brake bar by installing shaft (10), spacer (9), caps (2) and (8), washer (12), bolt (7), washer (3) and nut (4).

(g)TORQUE nut to between 1.8 and 2.2 m. daN (13.3 and 16.2 lbf. ft.) and safety with cotter pin (5).

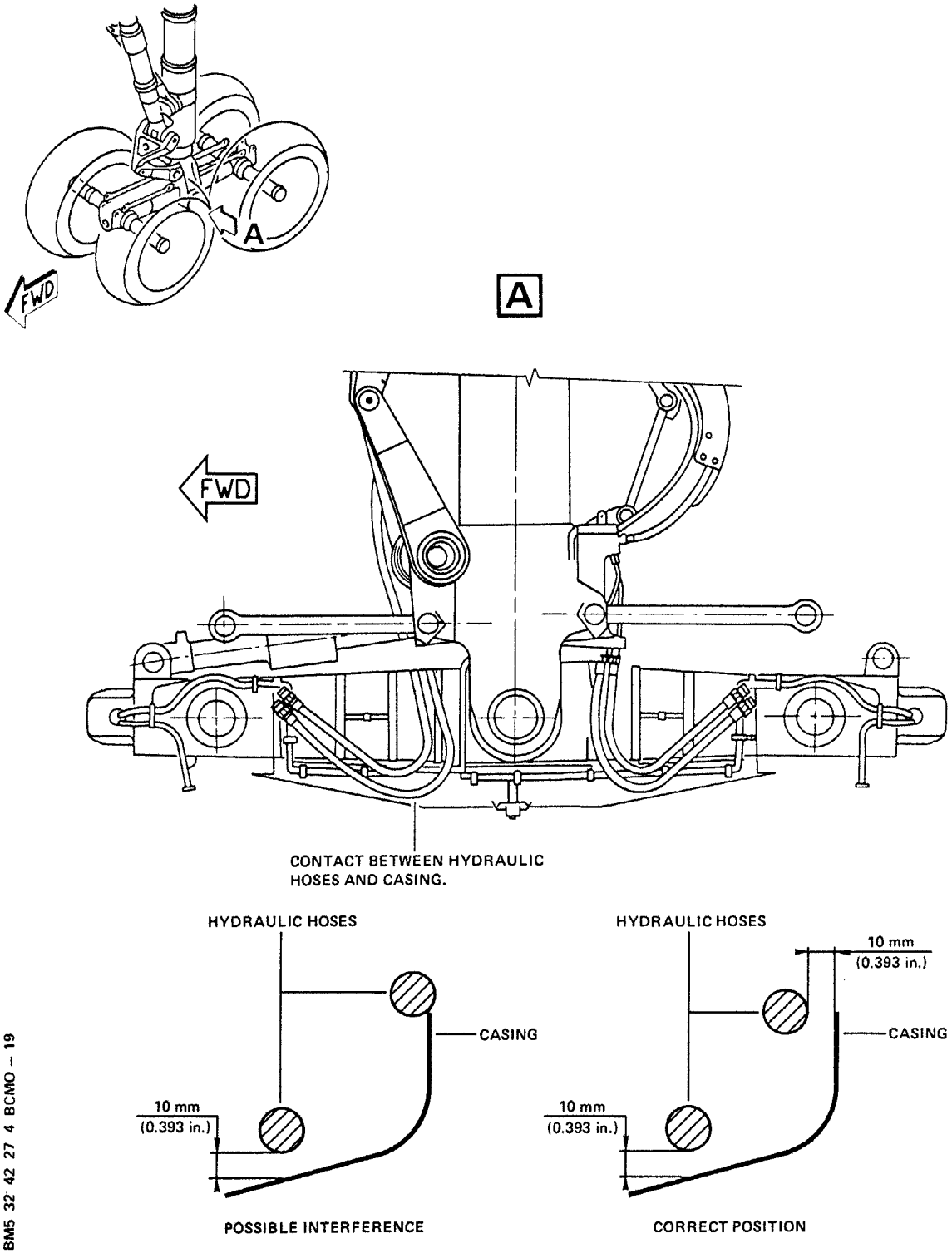
(h)Install hydraulic lines on support (16), and using pin (17), secure clamp block (21) fitted with lines on support (20).

NOTE : After each brake replacement and before tightening the unions between the brake assembly and the hydraulic hoses, carefully position the hoses in order to avoid any contact with the casing. A gap of 10 to 20 mm (0.393 to 0.787 in.) must be established. Keep this position during tightening. (Ref. Fig. 403).

(j)Connect self-sealing couplings and safetylock with safety pin.

NOTE : Before connecting the self-sealing couplings, check the absence of damage and foreign particles in the seal groove area of the male part as well as on the female part (area of the nipple). The male and female parts, particularly the inner areas must be cleaned.

Apply hydraulic fluid (Material No. 02-003) to a new seal assembly and install it.



Fitting of Hydraulic Lines in Casing for Correct Installation
Figure 403

CAUTION : DO NOT FORGET TO INSTALL THE SAFETY PIN ON THE QUICK DISCONNECT.

(k)Connect electrical connector to brake temperature sensor.

(l)Secure clamp (25) on support (28) using bolt (31), washer (26) and nut (27).

(m)Apply PARKING BRAKE

(n)Remove mounting fixture M21924 and position on removed brake unit.

CAUTION : WHEN BRAKE UNIT IS INSTALLED WITHOUT WHEEL AND MOUNTING FIXTURE, PRESSURE NOT APPLIED, DO NOT ATEMPT TO :
- ROTATE ROTORS MANUALLY
- APPLY PRESSURE TO BRAKE WHEN ROTORS ARE NOT ALIGNED.

(p)Remove brake mounting fixture 2558592.

(q)Install wheel previously removed (Ref. 12-37-32, P. Block 1).

NOTE : Visually check that wheel is not damaged.

(r)Remove safety clips and tags and close circuit breakers 4GE, 7GX, 1GV, 17GW, 1GW, 5GG, 98GG, 4GG, 42GG, 2GG, 41GG and 95GG on panel 133VU.

(s)Bleed brake unit (Green and Yellow hydraulic systems) (Ref. 32-42-00, P. Block 301 and Ref. 32-43-00, P. Block 301).

(6)Tests

(a)A Normal braking operational test (Ref. 32-42-00, P. Block 501) and an Alternate braking test (Ref. 32-43-00, P. Block 501) and check for leakage.

(b)Perform a brake system temperature operational test (Ref. 32-47-00, P. Block 501).

(7)Close-Up

(a)Lower the aircraft onto its wheels and remove jack.

(b)Make certain that working area is clean and clear of tools and miscellaneous items of equipment.

WARNING : MAKE CERTAIN THAT DOOR TRAVEL RANGES ARE CLEAR.

(c)Close left main landing gear door (Ref. 32-12-11, P. Block 301).

(d)Close access doors, remove access platform, safety barriers and warning notices.

3. Brake temperature Sensor

A. Equipment and Materials

ITEM	DESIGNATION
(1)	Corrosion Resistant Steel Lockwire Dia 0.8 mm (/0.032 in.)
(2)Material No. 04-004	Common Greases (Ref. 20-31-00)
Referenced Procedure - 32-47-00, P. Block 501	Brake System Temperature

B. Procedure

(1)Job Set-Up

(a)Open, safety and tag the following circuit breakers :

	PANEL	SERVICE	IDENT.	LOCATION
R	133VU	HYDRAULIC/BRAKES/TEMP/DET/UNIT	1GW	335/R58
	133VU	HYDRAULIC/BRAKES/TEMP/WARN	17GW	331/V54

(2)Removal

(Ref. Fig. 404)

(a)Disconnect electrical connector.

(b)Cut and remove lockwire and remove temperature sensor assy attachment bolt.

(c)Remove brake temperature sensor assy.

(3)Installation

NOTE : Do not mix Material No. 04-004 with Material No. 04-022. You can use Material No. 04-022 as an alternative to Material No. 04-004. Clean and degrease the parts before you use Material No. 04-022.

(a)At installation check that the sensor slides easily into its housing.

NOTE : When the brake temperature sensor assembly is in position, the end of the sensor is held along the length of the tube by a metal strip.

(b)Grease thread of bolt with Material No. 04-004 or Material No. 04-022.

(c)TORQUE bolt to between 0.6 and 0.7 m.daN (53.08 and 61.93 lbf.in.). Safety with lockwire.

(d)Install connector on brake temperature sensor assembly.

(4)Test

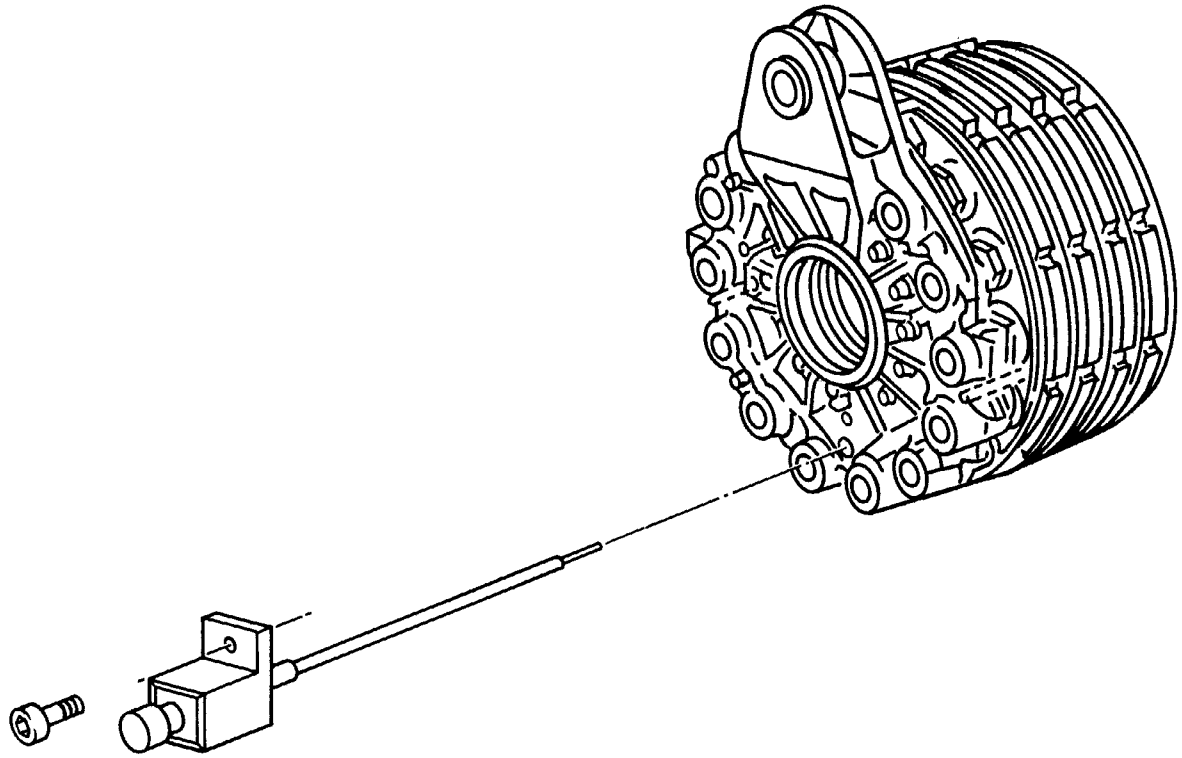
(a)Perform brake temperature sensor test described in brake system temperature operational test (Ref. 32-47-00, P. Block 501).

(5)Close-up

(a)Close circuit breakers 1GW and 17GW.

(b)Make certain that working area is clean and clear of tools and miscellaneous items of equipment.

4. Not Applicable



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Brake Temperature Sensor
Figure 404

5. Axle Protective Sleeve

A. Reason for the Job
The protective sleeves are removed to visually check axle condition, either periodically or further to a brake overheat (Ref. 05-51-16, P. Block 1)

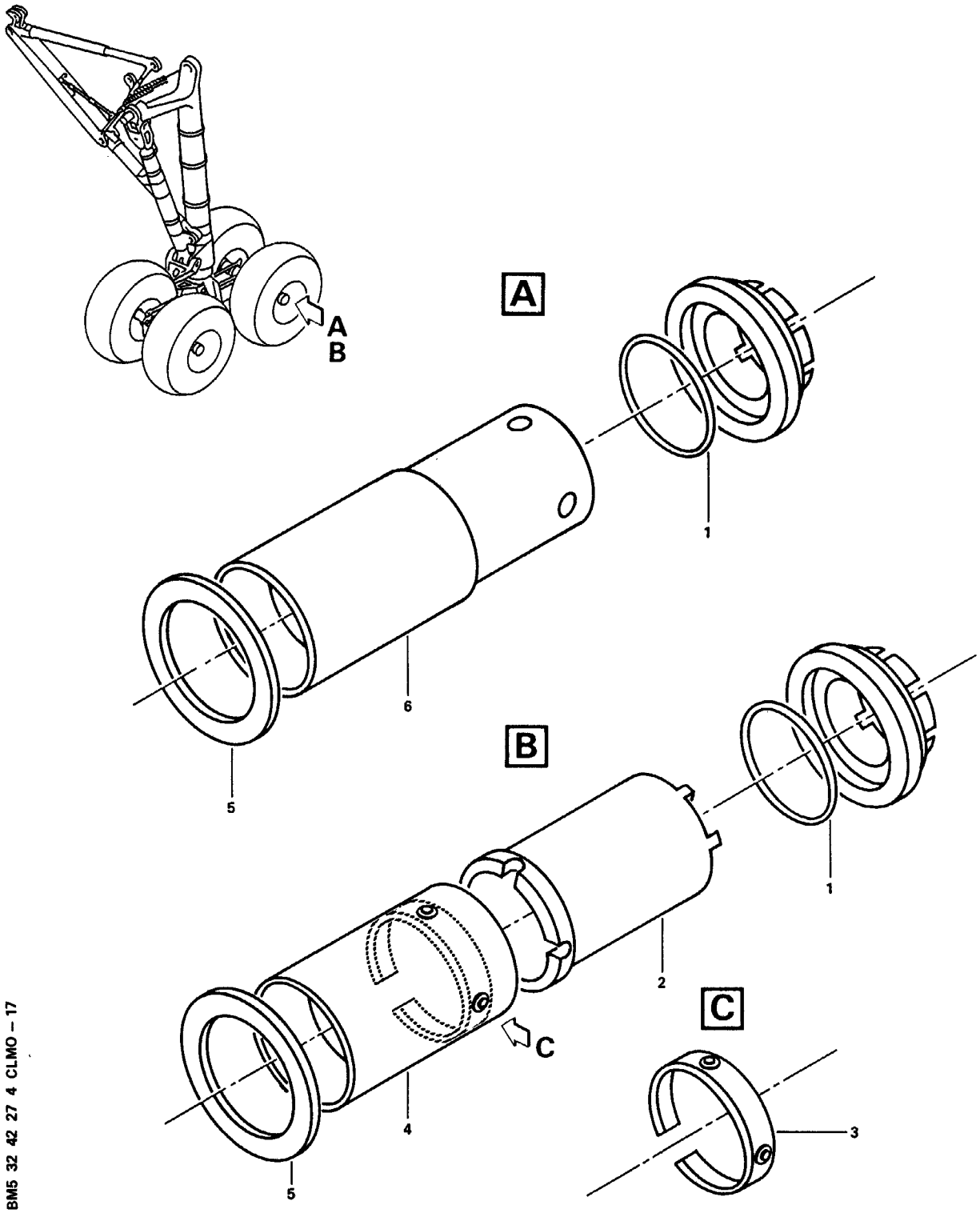
B. Equipment and Materials

	ITEM	DESIGNATION
	(1)Material No. 04-001	Common Greases (Ref. 20-31-00)
R	(2)Material No. 04-004	Common Greases (Ref. 20-31-00)
R	(3)Material No. 04-022	Common Greases (Ref. 20-31-00)
R	(4)Material No. 05-047	Special Materials (Ref. 20-31-00)
R	(5)Material No. 11-002	Cleanning Agents (Ref. 20-31-00)
	Referenced Procedures	
	- 05-51-16, P. Block 1	Inspection after Brake Emergency Application
	- 12-37-32, P. Block 1	Wheels Replacement

C. Procedure
NOTE : The aircraft is considered as being in a maintenance status wheel removed (Ref. 12-37-32, P. Block 1) and brake unit removed (Ref. Para. 2)
NOTE : Two interchangeable configurations can be used : one with 1 protective sleeve, the other with 2 sleeves.

(1)Removal
(Ref. Fig. 405)
(a)Configuration with protective sleeve (6) (Ref. Fig. 405) (Detail A)
1 Remove retaining ring (1)
2 Remove protective sleeve (6)
3 Remove spacer (5)
4 Degrease and clean protective sleeve and axle with Material No. 11-002 (avoid material spillage inside axle)
5 Visually check protective sleeve (6) : check for marks, impact damage, deformation and internal corrosion. Replace parts if necessary.
6 Check axle (Ref. 05-51-16, P. Block 1)
(b)Configuration with sleeves (2) and (4) (Ref. Fig. 405) (Detail B).
1 Remove retaining ring (1)
2 Remove sleeves (2) and (4)
3 Remove spacer (5)
4 Remove spring ring (3) from sleeve (4) using pliers.
5 Degrease and clean sleeves (2) and (4) and axle with Material No. 11-002 (avoid material spillage inside axle).
6 Visually check sleeves (2) and (4) : check for marks, impact damage, deformation and internal corrosion. Replace parts if necessary.
7 Check axle (Ref. 05-51-16, P. Block 1).

(2)Preparation of replacement component
- Install spring ring (3) using pliers in configuration with sleeves (2) and (4)
- Smear axle external bearing surfaces and according to configuration, internal bearing surfaces of protective sleeve or sleeves with



Axle Protective Sleeve
Figure 405

Material No. 05-047.

NOTE : As carbon is a material sensitive to hydraulic fluids and to grease in general, it is highly recommended to protect the brake unit (using a cover for example) during maintenance operations which can result in projection of the above mentioned materials.

(3)Installation

(a)Configuration with protective sleeve (6) (Ref. Fig. 405) (Detail A)

1 Install spacer (5)

2 Install protective sleeves (6). Make certain that protective sleeve (6) is installed in correct angular position using notches located at axle end.

3 Install retaining ring (1)

4 Smear external bearing surfaces of axle protective sleeve with Material No. 04-001.

(b)Configuration with sleeves (2) and (4) (Ref. Fig. 405) (Detail B)

1 Install spacer (5)

2 Install sleeves (2) and (4). Make certain that sleeve (2) is installed in correct angular position using notches located at axle end.

3 Install retaining ring (1)

4 Smear external bearing surfaces of sleeves with Material No. 04-001.

R NOTE : In this location only, you can use Material No. 04-004 or
R Material No. 04-022 as an alternative to Material No. 04-001.
R NOTE : Do not mix these greases.

(4)Close-up

(a)Install brake units (Ref. Para. 2).

(b)Install wheels (Ref. 12-37-32, P. Block 1).

NOTE : Visually check that wheel is not damaged.

1. General Check of Brake Unit

WARNING : BEFORE PROCEEDING WITH MAINTENANCE WORK ON OR NEAR MECHANICAL FLIGHT CONTROLS OR PRIMARY FLIGHT CONTROL SURFACES, LANDING GEARS, ASSOCIATED DOORS OR ANY MOVING COMPONENT, MAKE CERTAIN THAT GROUND SAFETIES AND/OR WARNING NOTICES ARE IN CORRECT POSITION TO PREVENT INADVERTENT OPERATION OF CONTROLS.

A. Reason for the Job

(1)Check brake unit for correct overall condition.
(2)Check wear pads for remaining wear.

B. Equipment and Materials

ITEM	DESIGNATION
(1)98A10001011000	Chocks - Wheel
Referenced Procedures	
- 29-21-00, P. Block 301	Green Auxiliary Power
- 29-23-00, P. Block 301	Yellow Auxiliary Power (Power Transfer Unit)
- 32-42-27, P. Block 401	Brake Unit

C. Procedure

(1)Job Set up
- Pressurize Green system depending on brake system to be checked (Ref. 29-21-00, P. Block 301).
- Pressurize Yellow system depending on brake system to be checked (Ref. 29-23-00, P. Block 301).
- Wheels chocks in position.
- Parking brake released.

(2)Checks

(a)Check for Normal braking system leakage.

1 A/Skid switch in NORM/ON position.
2 Depress pedals several times.
3 Check leakages.
- Check hydraulic crown, pistons and hydraulic line connections for leakage.
- Check that hydraulic supply hoses are free from cuts.

NOTE : Check that hydraulic pipes are free from cracks.

(b)Check for Alternate braking system leakage
- A/Skid switch in Altn/ON position.
- Repeat operations described in paragraph 1.C.(2).(a).

(c)Check brake bar, bleed valve covers, temperature sensor and self sealing installation.

CAUTION : MAKE CERTAIN THAT SELF SEALING COUPLING SPRING LOADED SLIDES ARE IN FULLY DOWN (LOCKED) POSITION.

(d)Check wear of heat packs with brake applied.
(Ref. Fig. 601)

NOTE 1 : Wear indicator readings should be taken when the brake temperature is as close as possible to the ambient tempe-

rature.

NOTE 2 : When the end of the wear indicator comes into contact with the machined surface on the hydraulic crown, the wear of the heat pack reaches its maximum value.

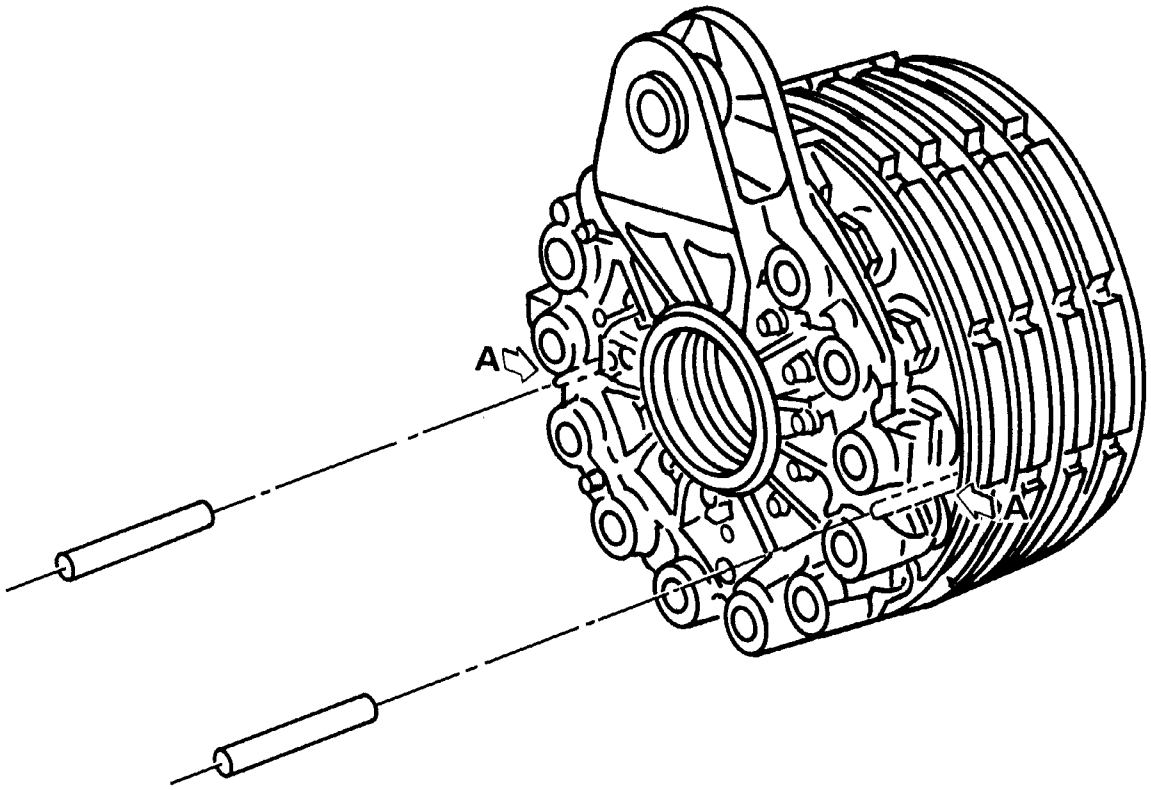
R In this case dimension "D" becomes zero, and the brake unit
R must be replaced (Ref. 32-42-27, P. Block 401).
The heat packs must be replaced.

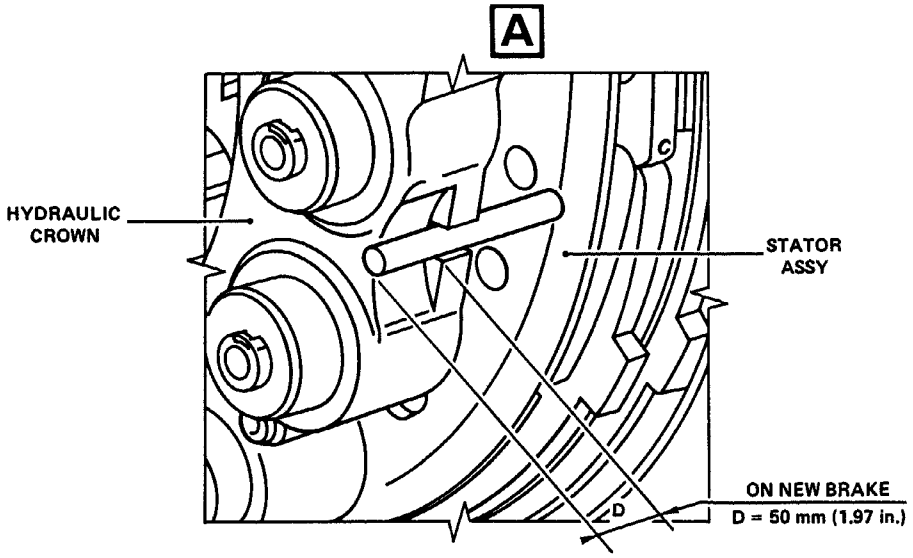
NOTE 3 : On a new brake make certain that dimension "D" between end of wear indicator and spot face on hydraulic crown is 50 mm (1.97 in.) (Ref. Fig. 601).

NOTE 4 : If one brake is found with an indicator missing, the brake will be considered as serviceable if the remaining wear pin is within limits. If both indicators are missing the brake must be deactivated.

(3)Close-up

- Depressurize Green Hydraulic system (Ref. 29-21-00, P. Block 301).
- Depressurize Yellow Hydraulic system (Ref. 29-23-00, P. Block 301).
- Make certain that working area is clean and clear of tools and micellaneous items of equipment.





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Wear Indicator (Messier)
Figure 601

2. Check of Brake Unit with Wheel Removed

WARNING : CHECK THAT THE LANDING GEAR GROUND SAFETIES INCLUDING WHEEL CHOCKS ARE IN POSITION.

A. Reason for the job

(1)Whenever wheel is removed and without dismantling brake unit, cursory check of disc pads. (Maximum wear not being indicated, but disc pad wear unevenly distributed).

(2)To ensure return flight of aircraft when at line station check, brake wear indicator shows that disc pad wear approaches maximum.

(3)Whenever a scheduled inspection of the eight brake units coincides with removal of heat packs (whatever the position of wear indicator).

(4)In case of doubt after a brake overheat warning.

B. Equipment and materials

ITEM	DESIGNATION
(1)98A10001011000	Chocks - Wheel
(2)	Set of Filler Gages
Referenced Procedures	
- 12-37-32, P. Block 1	Wheel Replacement
- 32-42-27, P. Block 401	Brake Unit
- 29-21-00, P. Block 301	Green Auxiliary Power

C. Procedure

(1)Job set-up

(a)Make certain that wheel chocks are in position.

(b)Make sure that parking brake is released.

(c)Pressurize Green hydraulic system (Ref. 29-21-00, P. Block 301).

(d)Remove wheel associated with brake to be checked (Ref. 12-37-32, P. Block 1).

(2)Checks

(a)At each wheel removal, in addition to the items specified in paragraph 1.C.(2), inspect :

CAUTION : BRAKES MUST NOT BE PRESSURIZED WHEN DISCS ARE MISALIGNED.

(b)Make certain at heat pack that :

- rotor discs are free to rotate
- stator discs displace freely.

R (c)Make sure that the disks can move easily on the torque tube.

R (d)Check brake pressure plate for correct operation (no hanging, no sticking) during brake application.

R (e)Make sure that there are no cracks or signs of too much heat on the
R torque tube.

R (f)Make sure that there are no cracks on the stator assembly.

R (g)Make certain that insulating washers are in position on piston.

R (h)In the event that wear damage likely to prevent correct brake operation is evidenced, replace brake unit (Ref. 12-37-32, P. Block 1).

R (j)Check for signs of oxidation. If oxidation is found, replace brake (Ref. 32-42-27, P. Block 401).

(3)Close-up

(a)Depressurize Green hydraulic system (Ref. 29-21-00, P. Block 301).
(b)Install wheel (Ref. 12-37-32, P. Block 1). Turn wheel to check for correct operation.
(c)Make certain that working area is clean and clear of tools and miscellaneous items of equipment.

SAFETY VALVES (1322 TO 1329) (3324, 3325, 3328, 3329) - SERVICING

WARNING : CHECK THAT THE LANDING GEAR GROUND SAFETIES INCLUDING WHEEL CHOCKS ARE IN POSITION.

BEFORE POWER IS SUPPLIED TO THE AIRCRAFT MAKE CERTAIN THAT ELECTRICAL CIRCUITS UPON WHICH WORK IS IN PROGRESS ARE ISOLATED.

BEFORE PRESSURIZING HYDRAULIC SYSTEMS MAKE CERTAIN THAT HYDRAULIC SYSTEM UNDER MAINTENANCE HAS BEEN ISOLATED.

1. Reasons for the Job

A. Restoration of safety valve to normal operating condition (bleeding) after leakage downstream of the safety valve.

B. Test after restoration to normal operating condition

2. Equipment and Materials

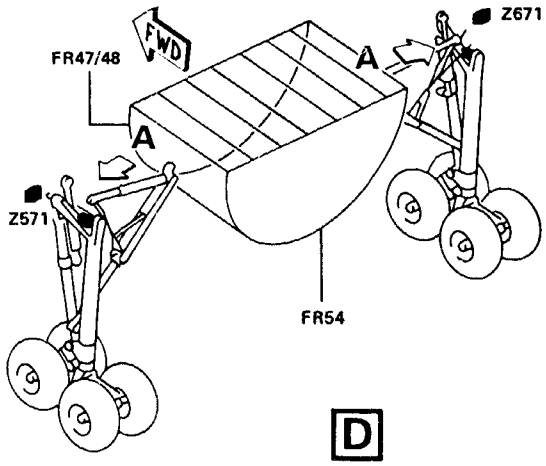
ITEM	DESIGNATION
A.	Wheel Chocks
B.	Container
C.	Warning Notice
Referenced Procedures	
- 24-41-00, P. Block 301	AC External Power Control
- 29-21-00, P. Block 301	Green Auxiliary Power
- 29-23-00, P. Block 301	Yellow Auxiliary Power (Power Transfer Unit)
- 32-42-00, P. Block 301	Normal Braking
- 32-43-00, P. Block 301	Alternate Braking with Anti Skid

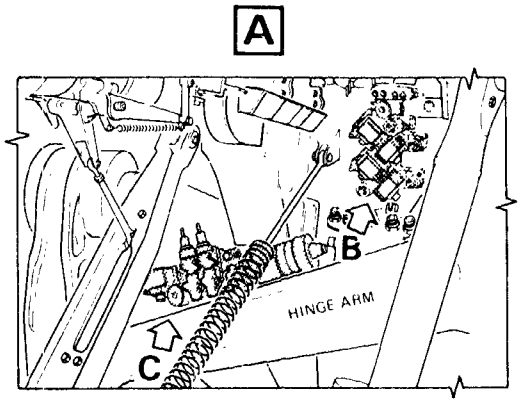
3. Procedure
(Ref. Fig. 301)

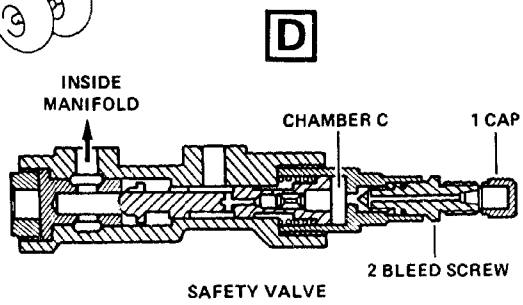
A. Job Set-Up
(1)Remove bleed screw cap (1) from safety valve. Connect vinyl hose and submerge one end in a hydraulic fluid container.

B. Restoration to Normal Operating Condition.
NOTE : Restoration to normal operating condition is performed with brake pedals released (brakes depressurized).
(1)Cut and remove lockwire then slowly unscrew bleed screw (2) so that fluid flows from chamber C.
(2)As soon as fluid flow stops, close and wirelock bleed screw (2).
(3)Disconnect vinyl hose and install cap (1) on bleed screw.

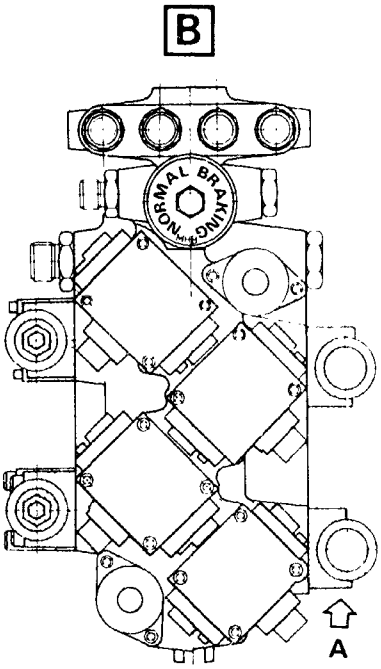
C. Bleed Brake Units Involved
(1)After restoration of safety valves (1322 to 1329) to normal operating condition (Ref. 32-42-00, P. Block 301).
(2)After restoration of safety valves (3324, 3325, 3328, 3329) to normal



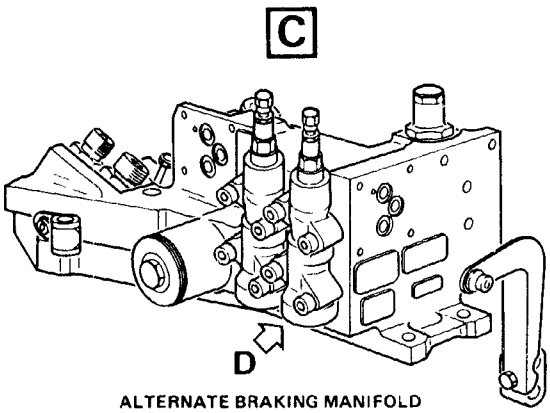




SAFETY VALVE



NORMAL BRAKING MANIFOLD



ALTERNATE BRAKING MANIFOLD

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LEFT GEAR		RIGHT GEAR	
NORMAL SAFETY VALVE	CORRESPONDING WHEEL	NORMAL SAFETY VALVE	CORRESPONDING WHEEL
1322	1	1327	3
1326	2	1323	4
1324	5	1329	7
1328	6	1325	8
ALTERNATE SAFETY VALVE	CORRESPONDING WHEEL	ALTERNATE SAFETY VALVE	CORRESPONDING WHEEL
3324	1 and 2	3325	3 and 4
3328	5 and 6	3329	7 and 8

Safety Valve - Bleeding
Figure 301

operating condition (Ref. 32-43-00, P. Block 301).

D. Test After Restoration to Normal Operating Condition
(1)On panel 4VU
- make certain that landing gear control lever is in **DOWN** position and prohibit its operation by displaying a warning notice.

(2)On panel 9VU
- make certain that **PARKING BRAKE** control handle is in normal position.

(3)Make certain that the following circuit breakers are closed :

PANEL	SERVICE	IDENT.	LOCATION
22VU	LDG GEAR/EXTEND CTL	1GA	201/J28
133VU	HYDRAULIC-BRAKES SYSTEM/CTL UNIT/ CTL WARN	5GG	333/T56
133VU	HYDRAULIC-BRAKES SYSTEM/CTL UNIT/ NORM SUPPLY	4GG	331/V55
133VU	HYDRAULIC-BRAKES SYSTEM/CTL UNIT/ NORM SUPPLY	2GG	332/U55
133VU	HYDRAULIC-BRAKES SYSTEM/CTL UNIT/ NORM SUPPLY	41GG	332/U56
133VU	HYDRAULIC-BRAKES SYSTEM/CTL UNIT/ NORM SUPPLY	42GG	331/V56

(4)According to the valve involved, pressurize Green system (Ref. 29-21-00, P. Block 301) or Yellow system (Ref. 29-23-00, P. Block 301).
(5)Depress pedals so as to pressurize brake units
- make certain that brake unit connected to the valve involved is pressurized (displacement of pistons to brake-applied position).

(6)Release pedals
- make certain that brake unit pressure drops (displacement of pistons to brake-released position).

E. Close-Up
(1)De-energize the aircraft electrical network (Ref. 24-41-00, P. Block 301).
(2)Remove warning notices.
(3)Remove all ground handling and maintenance equipment, standard and special tools, together with ground power and replenishing equipment all access equipment and miscellaneous items.

R WARNING : CHECKTHAT THE LANDING GEAR GROUND SAFETIES INCLUDING WHEEL CHOCKS ARE IN POSITION.

BEFORE APPLYING OR RELIEVING HYDRAULIC SYSTEM PRESSURE, MAKE CERTAIN THAT THE TRAVEL RANGES OF THE CONTROL SURFACES ARE CLEAR.

BEFORE PRESSURIZING HYDRAULIC SYSTEMS, CHECK THAT ALL CONTROLS ARE SET TO CORRESPOND WITH THE ACTUAL POSITION OF THE SERVICES THEY OPERATE.

BEFORE POWER IS SUPPLIED TO THE AIRCRAFT MAKE CERTAIN THAT ELECTRICAL CIRCUITS UPON WHICH WORK IS IN PROGRESS ARE ISOLATED.

BEFORE PRESSURIZING HYDRAULIC SYSTEMS MAKE CERTAIN THAT HYDRAULIC SYSTEM UNDER MAINTENANCE HAS BEEN ISOLATED.

1. Reason for the Job

A. Removal for replacement of Normal brake (Green) safety valves 1322 to 1329.

B. Removal for replacement of Alternate brake (Yellow) safety valves 3324, 3325, 3328, 3329.

2. Equipment and Materials

ITEM	DESIGNATION
A.	Wheel Chocks
B.	Safety Barriers
C.	Warning Notice
D.	Blanking Plugs/Caps
E.	Container
F.	Circuit Breaker Safety Clips
G.	Access Platform 2.60 m (8 ft. 7 in.)
H. Material No. 11-002	Cleaning Agents (Ref. 20-31-00)
Referenced Procedures	
- 12-12-29, P. Block 1	Hydraulics
- 29-10-00, P. Block 301	Main Hydraulic Power - Pressurization/ Depressurization
- 29-14-00, P. Block 301	Hydraulic Reservoir Pressurizing/System
- 29-21-00, P. Block 301	Green Auxiliary Power
- 29-23-00, P. Block 301	Yellow Auxiliary Power (Power Transfer Unit)
- 32-12-11, P. Block 301	Main Gear Main Door - (Ground Door(s) Opening)

3. Procedure

A. Job Set-Up
(1)On panel 4VU

- make certain that landing gear control lever is in **DOWN** position and prohibit its operation by displaying a warning notice.

(2)On mechanical center pedestal 9VU
- make certain that **PARKING BRAKE** control handle is in Normal (released) position.

(3)Make certain that wheel chocks are in position.

(4)Position safety barriers.

(5)Position access platform.

WARNING : MAKE CERTAIN THAT THE DOOR TRAVEL RANGES ARE CLEAR.

(6)Open left main gear door (Ref. 32-12-11, P. Block 301).

WARNING : WHEN DOORS ARE OPEN MAKE CERTAIN THAT SAFETY COLLARS ARE POSITIONED ON DOOR ACTUATING CYLINDER.

(7)Depressurize hydraulic system concerned :

(a)For removal of Normal brake safety valves 1322 to 1329
Depressurize Green hydraulic system (Ref. 29-10-00, P. Block 301) and prohibit its pressurization by displaying a warning notice
- on Green hydraulic system ground connectors
- on panel 427VU to prohibit operation of Green electric pumps (**ELEC PUMPS** pushbutton switch).

(b)For removal of Alternate brake safety valves 3324, 3325, 3328 and 3329
Depressurize Yellow hydraulic system (Ref. 29-10-00, P. Block 301) and prohibit its pressurization by displaying a warning notice
- on Yellow hydraulic system ground connectors
- on panel 427VU to prohibit energization of power transfer unit (right **PTU** pushbutton switch).

(8)Depressurize hydraulic reservoir concerned :

(a)For removal of Normal brake safety valves 1322 to 1329
Depressurize Green hydraulic reservoir (Ref. 29-14-00, P. Block 301) and prohibit its pressurization by displaying a warning notice :
- on panel 429VU, to prohibit **APU** starting
- on reservoir pressurization connector.

(b)For removal of Alternate brake safety valves 3324, 3325, 3328 and 3329
Depressurize Yellow hydraulic reservoir (Ref. 29-14-00, P. Block 301) and prohibit its pressurization by displaying a warning notice :
- on panel 429VU, to prohibit **APU** starting
- on reservoir pressurization connector.

(9)For removal of Alternate brake safety valves 3324, 3325, 3328 and 3329
Depressurize brake Yellow power accumulators 3125 and 3126 by means of pressure relief valve manual control located on Yellow manifold 3060.

(10)For removal of safety valves 1322 to 1329, open, safety and tag the following circuit breaker.

PANEL	SERVICE	IDENT.	LOCATION
133VU	HYDRAULIC/ELEC/PUMPS/WARN	4GE	331/V60

(11)For removal of safety valves 3324, 3325, 3328 and 3329, open safety and tag the following circuit breakers :

PANEL	SERVICE	IDENT.	LOCATION
133VU	HYDRAULIC/ELEC/PUMPS/WARN	4GE	331/V60
133VU	HYDRAULIC/ACCUPRESS/CTL AND CARGO DOOR/PUMPS	7GX	333/T51

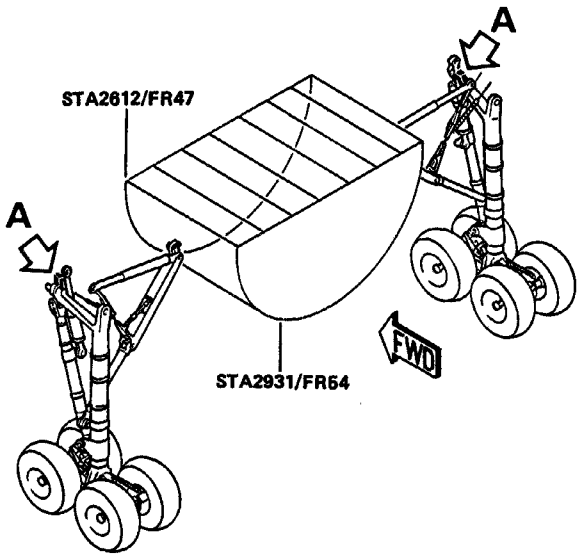
(12)Display a warning notice in the flight compartment prohibiting operation of Captain's and First Officer's brake pedals.
(13)Position hydraulic fluid container under the safety valve to be removed.

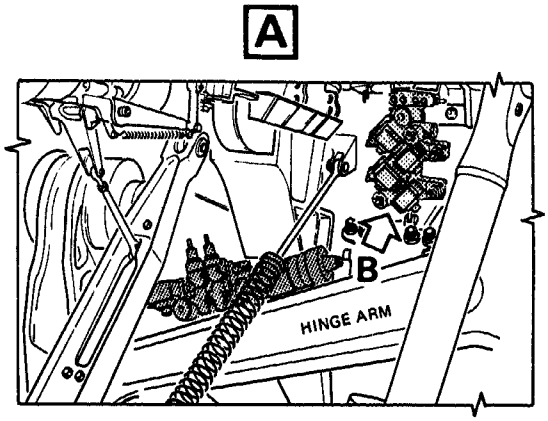
B. Removal
(Ref. Fig. 401)
(Ref. Fig. 402)
(Ref. Fig. 403)
(1)Remove attaching screws (1) from safety valve (2) on manifold (4).
(2)Remove safety valve (2).
(3)Retain connecting spool (3) and filter element (5).
(4)Discard O-rings (6), (10) and (13), and back-up rings (7), (8), (11) and (12).
(5)Install blanking plugs in open ports.

C. Preparation of Replacement Component
(1)Depreserve replacement safety valve
(2)Clean safety valve (2) and manifold (4) interfaces with Material No. 11-002 (Ref. 20-31-00) and dry with filtered compressed air.
(3)Install O-rings (6), (9) and back-up rings (7) and (8) on spool (3).
(4)Install O-rings (10) and (13) and back-up rings (11) and (12) on filter element (5).

D. Installation
(1)Install spool (3) fitted with back-up rings (7) and (8) and O-rings (6) and filter element (5) fitted with O-rings (10), back-up ring (11) and (12) and O-rings (13) in their respective bores in manifold (4).
(2)Position the replacement safety valve (2) on the manifold (4).
(3)Install four screws (1).
(4)Bleed brakes involved.
(a)After removal of safety valves 1322 to 1329 (Ref. 32-42-00, P. Block 301).
(b)After removal of safety valves 3324, 3325, 3328 and 3329 (Ref. 32-43-00, P. Block 301).

E. Tests
(1)After removal of safety valves 1322 to 1329, remove safety clip and tag and close circuit breaker 4GE.
(2)After removal of safety valves 3324, 3325, 3328 and 3329, remove safety clips and tags and close circuit breakers 4GE and 7GX.
(3)Make certain that circuit breakers 17GS, 1GV, 17GW, 1GW, 5GG, 98GG, 4GG, 42GG, 2GG, 41GG, 95GG on panel 133VU, line 804 and circuit breaker 1GA, on panel 22VU, line 201, J28 are closed.



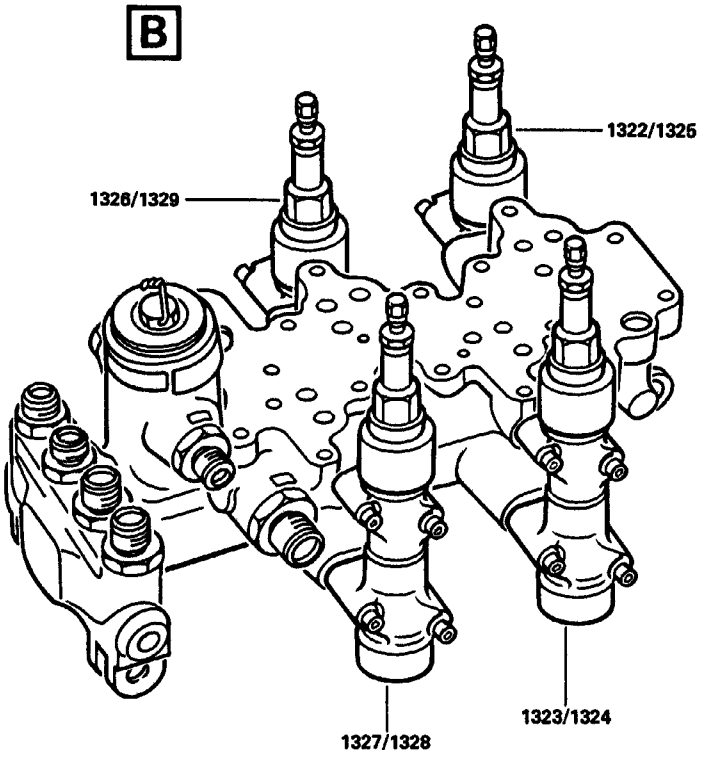


LEFT GEAR

SAFETY VALVE	CORRESPONDING WHEEL
1322	1
1326	2
1324	5
1328	6

RIGHT GEAR

SAFETY VALVE	CORRESPONDING WHEEL
1327	3
1323	4
1329	7
1325	8



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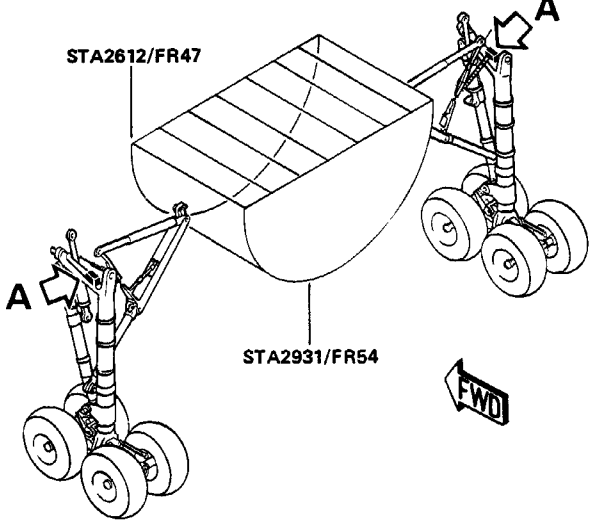
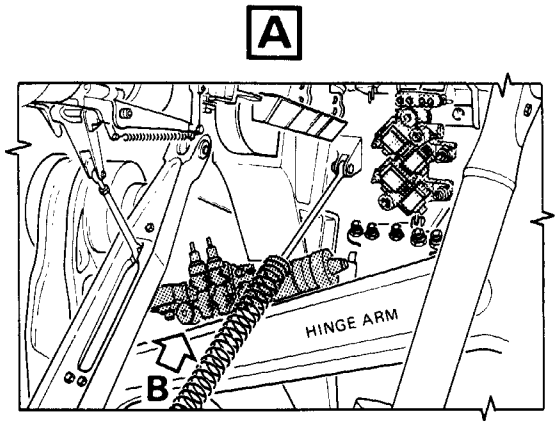
Safety Valves - Normal Brake
Figure 401



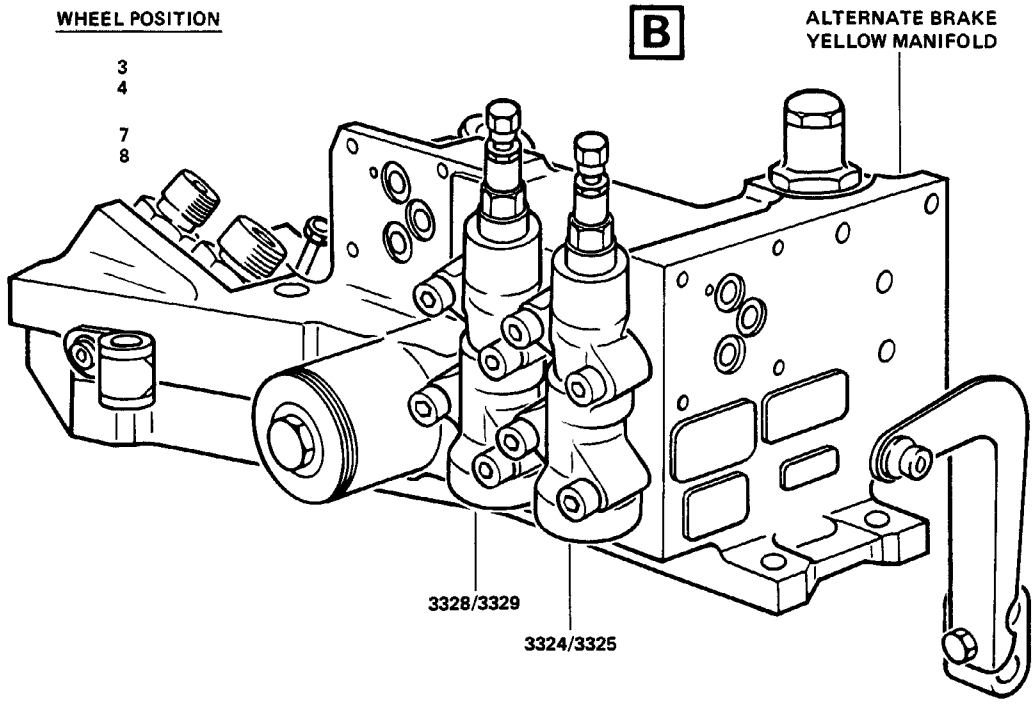


LEFT GEAR

SAFETY VALVE	WHEEL POSITION
3324	1 2
3328	5 6

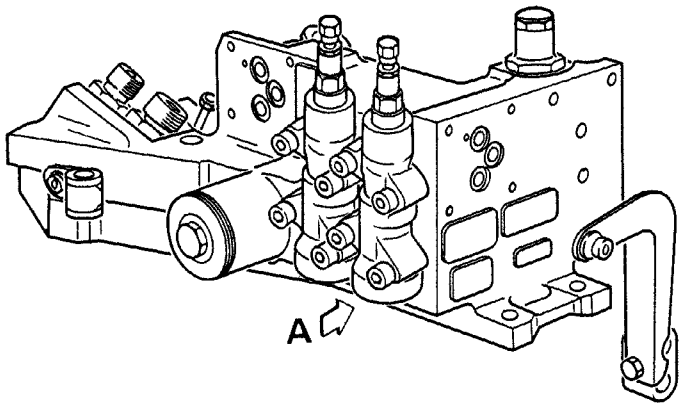
RIGHT GEAR

SAFETY VALVE	WHEEL POSITION
3325	3 4
3329	7 8

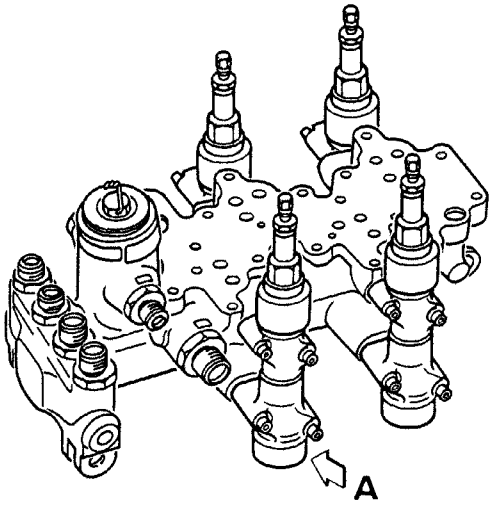


BM5 32 42 36 4 AGM0 – 00

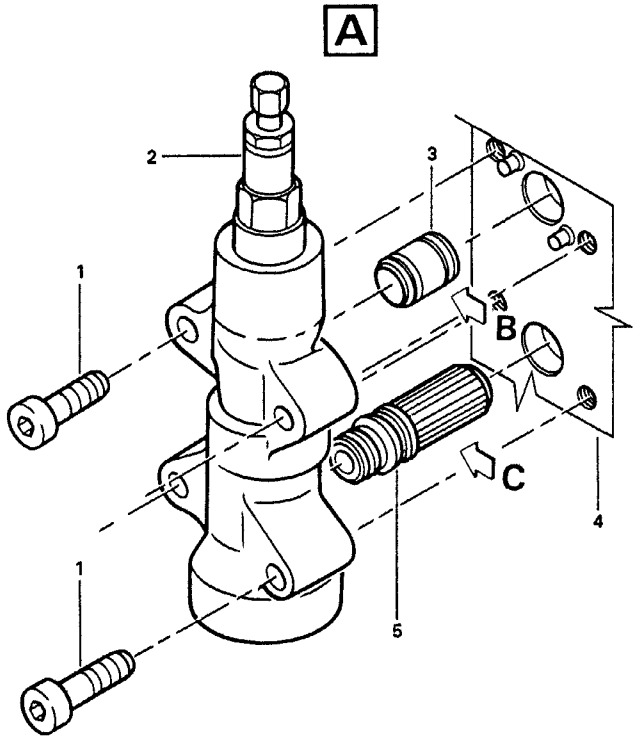
Safety Valves - Alternate Brake
Figure 402

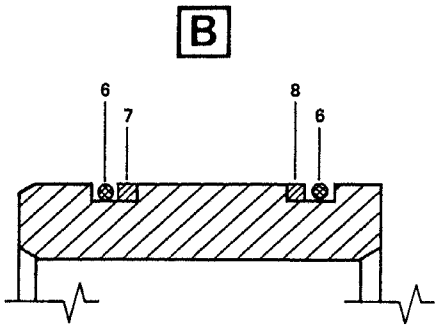


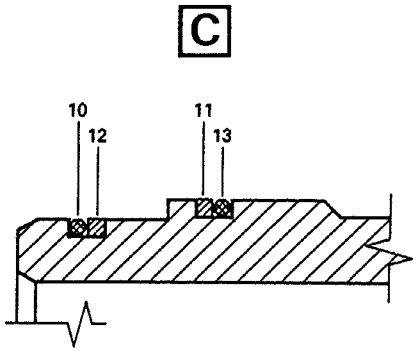
ALTERNATE BRAKING MANIFOLD



NORMAL BRAKING MANIFOLD







BM5 32 42 36 4 ALMD – 19

Safety Valves - Removal/Installation
Figure 403

(4)Remove warning notices.
(5)Check hydraulic fluid level in depressurized reservoir and replenish as necessary (Ref. 12-12-29, P. Block 1).
(6)Pressurize hydraulic system reservoir according to valve involved (Ref. 29-14-00, P. Block 301).
(7)Pressurize hydraulic system according to valve involved (Ref. 29-10-00, P.Block 301).
(8)Perform following operational test.

ACTION	RESULT
A. Depress brake pedals so as to pressurize brake units.	Brake unit pistons associated with replaced safety valve move to brake-applied position.
B. Release brake pedals.	Brake unit pressure drops (pistons move to brake-released position).

NOTE : Check for hydraulic fluid leakage at replaced safety valve after pressurization and the above described test.

F. Close-Up
(1)Make certain that working area is clean and clear of tools and miscellaneous items of equipment.
WARNING : MAKE CERTAIN THAT THE DOOR TRAVEL RANGES ARE CLEAR.
(2)Remove hydraulic fluid container.
(3)Close left landing gear door (Ref. 32-12-11, P. Block 301).
(4)Close access doors, remove access platforms and safety barriers.
(5)Remove all ground handling and maintenance equipment, standard and special tools, together with ground power and, replenishing equipment, all access equipment and miscellaneous items.

WARNING : CHECK THAT THE LANDING GEAR GROUND SAFETIES INCLUDING WHEEL CHOCKS ARE IN POSITION.

1. Reason for the Job

A. Removal for replacement : Normal brake return accumulators 1346-1347.

B. Removal for replacement : Alternate brake return accumulators 3346-3347.

2. Equipment and Materials

ITEM	DESIGNATION
A. 99A29001006000	Unit - Topping Up, Hydraulic Tank (Hand Operated)
B. 97A29102035000	Connector - Pressurizing, Hydraulic Tank
C. 97A29102062000	Connector - Depressurizing, Hydraulic Tank
D.	Safety Barriers
E.	Hydraulic Fluid Container
F.	Access Platform 2.60 m (8 ft. 7 in.)
G.	Circuit Breaker Safety Clips
H. Material No. 11-002	Cleaning Agents (Ref. 20-31-00)
J. Material No. 09-001	Sealants (Ref. 20-31-00)
Referenced Procedures	
- 12-12-29, P. Block 1	Hydraulic Reservoir Replenishing
- 29-10-00, P. Block 301	Main Hydraulic Power - Pressurization/ Depressurization
- 29-14-00, P. Block 301	Hydraulic Reservoir Pressurizing System
- 32-12-11, P. Block 301	Main Gear Main Door - (Ground Door(s) Opening)

3. Procedure

A. Job set-up
(1)On panel 4VU
- make certain that landing gear control lever is in DOWN position and prohibit its operation by displaying a warning notice.

(2)Between First Officer's and Third Occupant's seats
- make certain that landing gear Free Fall extension control handle is in Normal position.

(3)Make certain that wheel chocks are in position.
NOTE : For alternate brake return accumulator removal make certain that PARKING BRAKE control handle is in Normal (released) position and prohibit its operation by displaying a warning notice.

(4)Position safety barriers prohibiting access to gear door travel ranges.

(5)Position access platform.
WARNING : MAKE CERTAIN THAT THE DOOR TRAVEL RANGES ARE CLEAR.

(6)Open left main gear door (Ref. 32-12-11, P. Block 301).
WARNING : WHEN DOORS ARE OPEN MAKE CERTAIN THAT SAFETY COLLARS ARE

POSITIONED ON DOOR ACTUATING CYLINDER.

(7)Depressurize braking system corresponding to the accumulator to be removed.

(a)For normal brake return accumulators 1346 and 1347. Depressurize Green hydraulic system (Ref. 29-10-00, P. Block 301) and prohibit its pressurization by displaying a warning notice :
- on Green hydraulic system ground connectors
- on panel 427VU to prohibit operation of Green electric pumps (ELEC PUMPS pushbutton switch).

(b)For alternate brake return accumulators 3346 and 3347. Depressurize Yellow hydraulic system (Ref. 29-10-00, P. Block 301) and prohibit its pressurization by displaying a warning notice :
- on Yellow hydraulic system ground connectors
- on panel 427VU tp prohibit energization of Yellow PWR TRANSF unit (RH PTU pushbutton switch).

(8)Depressurize hydraulic reservoir concerned :

(a)For normal brake return accumulators 1346 and 1347. Depressurize Green hydraulic reservoir (Ref. 29-14-00, P. Block 301) and prohibit its pressurization by displaying a warning notice.
- on panel 429VU to prohibit APU starting
- on reservoir pressurization connector.

(b)For Alternate brake return accumulator 3346 and 3347. Depressurize Yellow hydraulic reservoir (Ref. 29-14-00, P. Block 301) and prohibit its pressurization by displaying a warning notice :
- on panel 429VU to prohibit APU starting
- on reservoir pressurization connector.

(9)Open, safety and tag the following circuit breakers :

PANEL	SERVICE	IDENT.	LOCATION
133VU	HYDRAULIC/ELEC/PUMPS/WARN	4GE	331/V60
133VU	HYDRAULIC/ACCU PRESS/CTL &/CARGO DOOR/PUMP	7GX	333/T51

(10)For removal of Alternate brake return accumulators 3346-3347 depressurize brake Yellow power accumulators 3125-3126 using pressure relief valve 3067 control handle on pressure manifold 3060.

(11)Position hydraulic fluid container

B. Removal

(Ref. Fig. 401)

(Ref. Fig. 402)

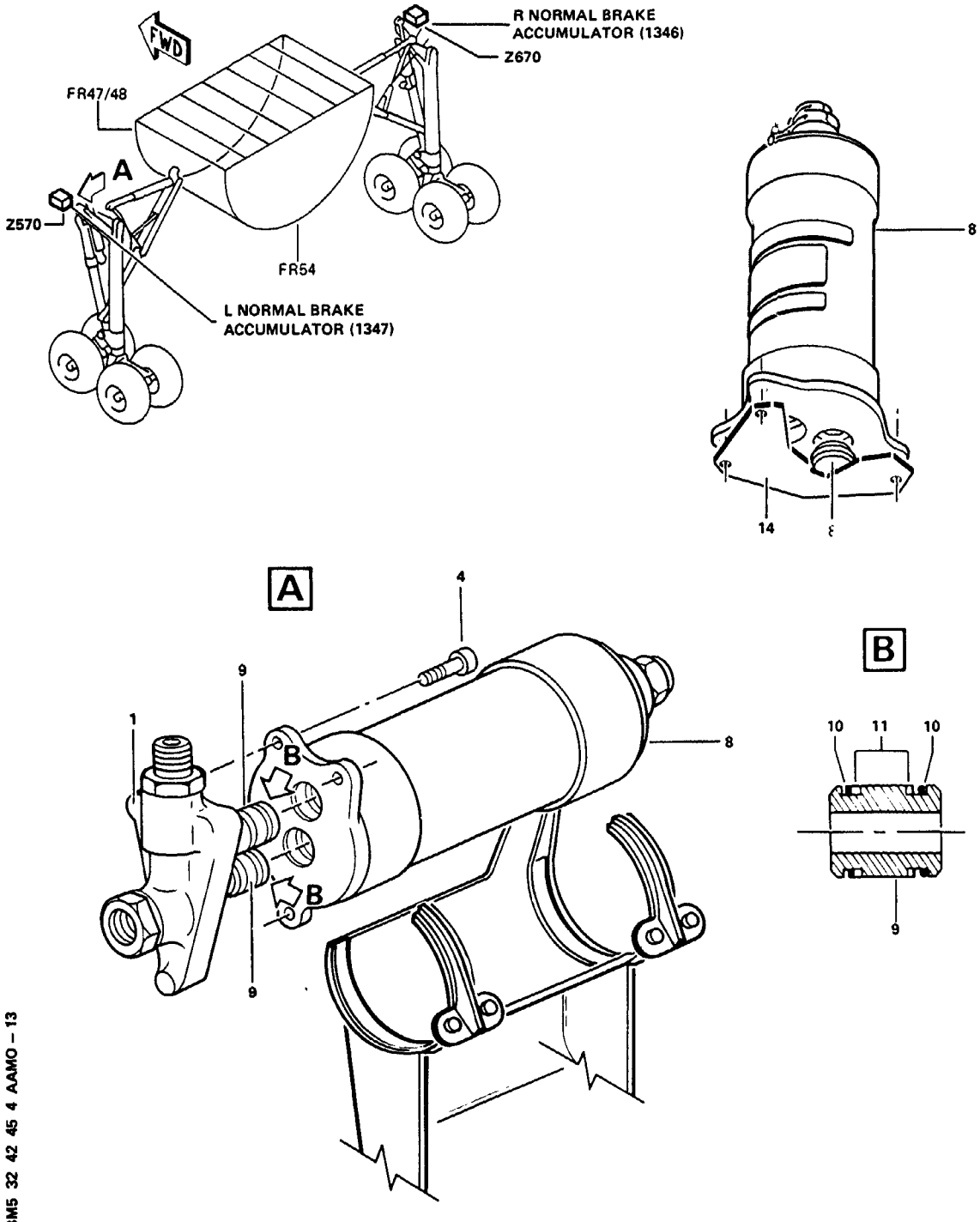
(1)Using a spatula, remove rubber protective coating from parts to be removed taking care not to damage surface finish.

R (2)Remove screws (4).

(3)On alternate brake return accumulator
- remove and retain washers (3)
- loosen screw (6) and slide support (5) on hydraulic lines to clear working area.

(4)Remove accumulator (8) from manifold (1).

(5)Remove spools (9) from Normal brake manifold or spools (9) and (2) from Alternate brake manifold.



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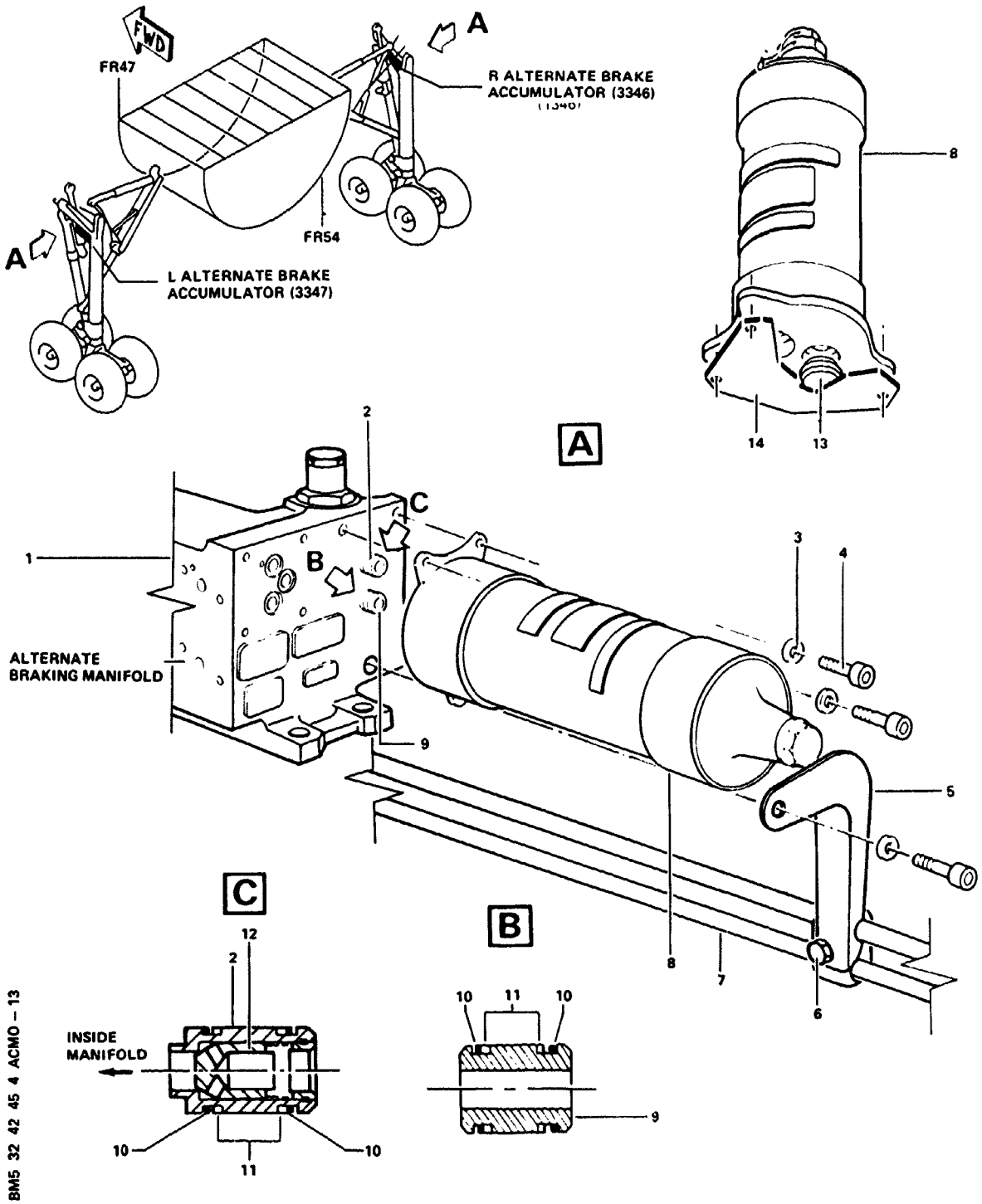
Normal Brake Return Accumulator
Figure 401



Alternate Brake Return Accumulator
Figure 402

- discard seals (10).
- check back-up rings (11) and replace them if necessary.

C. Preparation of Replacement Component

(1) Depreserve replacement accumulator by removing protective coverings and storage plate (14). Remove storage plugs (13).
NOTE : These components must be installed on removed component.

(2) Remove anti-corrosive protection, clean with Material No.11-002 and dry with filtered compressed air.

(3) Install new seals (10) on spools (9) (Normal accumulator) or spools (9) and (2) (Alternate accumulator) and make certain that seals (10) and back-up rings (11) are correctly positioned on spools.

(4) Install spools (9) in Normal brake manifold or spools (9) and (2) in their respective locations in Alternate brake manifold making certain that check valve (12) is installed in spool (2).
NOTE : End of spool (2) with smallest diameter is installed in manifold.

D. Installation

(1) Position accumulator (8) on manifold (1).

(2) On alternate brake return accumulator
- install support (5) by sliding it on hydraulic lines
R - install washers (3) and screws (4). TORQUE screws (4) to 115 lbf.in.
R (1.3 m.daN).
- tighten screw (6).

(3) On normal brake return accumulator
R - install screws (4). TORQUE screws (4) to 115 lbf.in. (1.3 m.daN).

(4) Smear screw (4) heads with Material No.09-001.

(5) Remove safety clips and tags and close circuit breakers 4GE and 7GX.

E. Tests

(1) Pressurize hydraulic system (Ref. 29-10-00, P. Block 301) corresponding to the accumulator concerned and press and release brake pedals several times.
- in the event of installation of Alternate brake return accumulator, depressurize Yellow hydraulic System and place PARKING BRAKE control handle in on (applied) position.
- check for hydraulic fluid leakage at junction between accumulator and manifold.

F. Close-Up

(1) Make certain that working area is clean and clear of tools and miscellaneous items of equipment.

(2) Remove hydraulic fluid container.

(3) Pressurize hydraulic reservoirs (Ref. 29-14-00, P. Block 301).
WARNING : MAKE CERTAIN THAT THE DOOR TRAVEL RANGES ARE CLEAR.

(4) Close left main gear door (Ref. 32-12-11, P. Block 301).

(5) Replenish hydraulic reservoirs if necessary (Ref. 12-12-29, P. Block 301).

(6) Remove warning notices.

(7) Close access doors, remove access platform and safety barriers.

(8)Remove all ground and maintenance equipment, standard and special tools, together with ground power and replenishing equipment, all access equipment and miscellaneous items.

BRAKE PEDAL POSITION TRANSMITTER UNIT (11GG) - REMOVAL/INSTALLATION

WARNING : CHECK THAT THE LANDING GEAR GROUND SAFETIES INCLUDING WHEEL CHOCKS ARE IN POSITION.

1. Equipment and Materials

ITEM	DESIGNATION
A.	Circuit Breaker Safety Clips
B.	Protective Caps
C.	Warning Notice
Referenced Procedures	
- 24-41-00, P. Block 301	AC External Power Control
- 29-21-00, P. Block 301	Green Auxiliary Power
- 32-42-00, P. Block 501	Normal Braking

2. Procedure

A. Job Set-Up

(1)Open, safety and tag the following circuit breakers :

PANEL	SERVICE	IDENT.	LOCATION
133VU	HYDRAULIC-BRAKES SYSTEM/CTL UNIT/NORM SUPPLY	2GG	332/U55
133VU	HYDRAULIC AUTO BRK	95GG	335/R57
133VU	HYDRAULIC-BRAKES SYSTEM/CTL UNIT/LAND RECOVERY SUPPLY	98GG	333/T55
133VU	HYDRAULIC-BRAKES SYSTEM/CTL UNIT/CTL WARN	5GG	333/T56
133VU	HYDRAULIC-BRAKES SYSTEM/CTL UNIT/NORM SUPPLY	4GG	331/V55
133VU	HYDRAULIC-BRAKES SYSTEM/CTL UNIT/NORM SUPPLY	41GG	332/U56
133VU	HYDRAULIC-BRAKES SYSTEM/CTL UNIT/NORM SUPPLY	42GG	331/V56

(2)Display a warning notice at brake pedals prohibiting use of Captain's and First Officer's pedals.

B. Removal

(Ref. Fig. 401)

(1)Cut and remove lockwire and disconnect pedal position transmitter electrical plug 11GG-A. Install protective cap.

(2)Disconnect spring rods (7) from transmitter control levers (10).

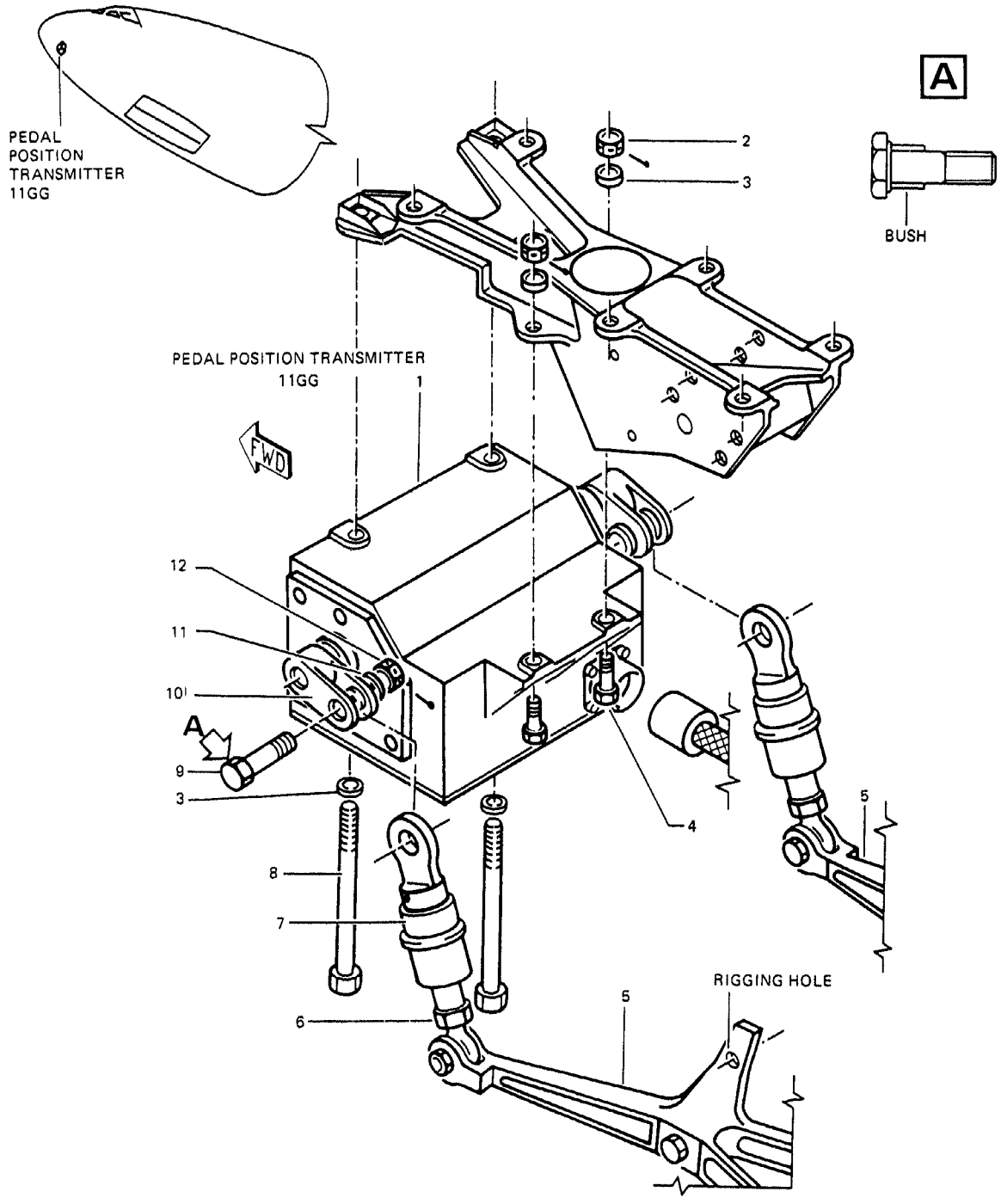
(a)Remove cotter pins and nuts (12), retain washers (11) and bolts (9) complete with bushes.

(b)Free spring rods (7).

(3)Remove pedal position transmitter.

(a)Cut and remove lockwire, remove bolts (8) and retain washers (3).

(b)Remove cotter pins, nuts (2)



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Pedal Position Transmitter
Figure 401

and retain washers (3) and bolts (4).
(c)Remove pedal position transmitter.

C. Preparation of Replacement Component
(1)Depreserve the replacement pedal position transmitter by removing external protective covering.

D. Installation
(1)Install pedal position transmitter.
(a)Install pedal position transmitter on its support.
(b)Install bolts (4), washers (3) and nuts (2).
(c)Install bolts (8) and washers (3). Wirelock bolts (8).
(d)Tighten nuts (2) and safety with cotter pins.
CAUTION : BEFORE INSTALLING BOLTS (9) MAKE CERTAIN THAT THEY ARE EQUIPPED WITH THEIR BUSHES.
(2)Perform adjustment of brake pedal transmitter unit control (Ref. 32-42-00, P. Block 501).
(3)Connect spring rods (7). Install bolts (9) complete with bushes, install washers (11) and nuts (12). Safety nuts (12) with cotter pins.
(4)Remove protective cap and connect transmitter electrical plug.
(5)Remove safety clips and tags and close circuit breakers 95GG, 2GG, 4GG, 5GG, 41GG, 42GG, 98GG.

E. Test
(1)Make certain that landing gear control lever is in DOWN position and prohibit its operation by displaying a warning notice.
(2)Make certain that PARKING BRAKE control handle is in Normal (released) position and prohibit its operation by displaying a warning notice.
(3)Make certain circuit breakers 1GG, 2GG, 4GG, 5GG, 41GG and 42GG are closed.
(4)Energize the aircraft electrical network (Ref. 24-41-00, P. Block 301).
(5)Make certain that electronics racks ventilation is correct.
(6)Pressurize Green hydraulic system using Green electric pumps (Ref. 29-21-00, P. Block 301).
(7)On panel 401VU
- place BRK A/SKID switch in NORM/ON position.
(8)Depress Captain's or First Officer's left pedal. On right main gear brake units, make certain that all the pistons are in released position. On left main gear brake units, make certain that the pistons supplied with Green pressure (7 of 14) are in extended position.
(9)Release left pedal and depress right pedal. On left main gear brake units, make certain that all pistons are in released position. On right main gear brake units, make certain that the pistons supplied with Green pressure (7 of 14) are in extended position.
(10)De-energize Green electric pumps (Ref. 29-21-00, P. Block 301).

F. Close-Up
(1)De-energize the aircraft electrical network (Ref. 24-41-00, P. Block 301).
(2)Remove warning notices.
(3)Make certain that working area is clean and clear of tools and miscella-

neous items of equipment.

R

WARNING : CHECK THAT THE LANDING GEAR GROUND SAFETIES INCLUDING WHEEL CHOCKS ARE IN POSITION.

BEFORE APPLYING OR RELIEVING HYDRAULIC SYSTEM PRESSURE, MAKE CERTAIN THAT THE TRAVEL RANGES OF THE CONTROL SURFACES ARE CLEAR.

BEFORE PRESSURIZING HYDRAULIC SYSTEMS, CHECK THAT ALL CONTROLS ARE SET TO CORRESPOND WITH THE ACTUAL POSITION OF THE SERVICES THEY OPERATE.

BEFORE PRESSURIZING HYDRAULIC SYSTEMS, MAKE CERTAIN THAT HYDRAULIC SYSTEM UNDER MAINTENANCE HAS BEEN ISOLATED.

BEFORE POWER IS SUPPLIED TO THE AIRCRAFT, MAKE CERTAIN THAT ELECTRICAL CIRCUIT UPON WHICH WORK IS IN PROGRESS ARE ISOLATED.

1. Equipment and Materials

ITEM	DESIGNATION
A. 99A29001006000	Unit - Topping Up, Hydraulic Tank (Hand Operated)
B. 97A29102035000	Connector - Pressurizing, Hydraulic Tank
C. 97A29102062000	Connector - Depressurizing, Hydraulic Tank
D.	Wheel Chocks
E.	Safety Barriers
F.	Warning Notices
G.	Blanking Plugs
H.	Hydraulic Fluid Container
J.	Circuit Breaker Safety Clips
K.	Access Platform
L.	Lockwire
M. Material No. 11-002	Cleaning Agents (Ref. 20-31-00)
Referenced Procedures	
- 12-12-29, P. Block 1	Hydraulics
- 29-10-00, P. Block 301	Main Hydraulic Power-Pressurization/Depressurization
- 29-14-00, P. Block 301	Hydraulic Reservoir Pressurizing System
- 32-12-11, P. Block 301	Main Gear Main Door - (Ground Door(s) Opening)
- 32-42-00, P. Block 301	Normal Braking
- 32-43-00, P. Block 301	Alternate Braking with Anti-Skid
- 32-42-48, P. Block 501	Servovalve

2. Procedure

A. Job Set-Up
(1)On panel 4VU
- make certain that landing gear control lever is in **DOWN** position and prohibit its operation by displaying a warning notice.

(2)Between First Officer's and Third occupant's seats
- make certain that Free Fall extension control handle is in Normal position.

(3)Make certain that wheels chocks are in position.

NOTE : For alternate servovalve removal make certain that parking brake control handle is in normal (released) position and prohibit its operation by displaying a warning notice.

(4)Install safety barriers to prohibit access to gear door travel ranges.

(5)Install access platform.

WARNING : MAKE CERTAIN THAT GEAR DOOR TRAVEL RANGES ARE CLEAR.

(6)Open left main gear door (Ref. 32-12-11, P. Block 301).

CAUTION : WHEN DOORS ARE OPEN, MAKE CERTAIN THAT SAFETY COLLARS ARE POSITIONED ON DOOR ACTUATING CYLINDERS.

(7)Depressurize hydraulic system concerned :

(a)For removal of Normal brake servovalves 13GG to 20GG.
Depressurize Green hydraulic system (Ref. 29-10-00, P. Block 301) and prohibit its pressurization by displaying warning notices :
- on Green hydraulic system ground connectors.
- on panel 427VU, to prohibit operation of Green electric pumps (ELEC PUMPS pushbutton switch).

(b)For removal of Alternate brake servovalves 75GG to 78GG.
Depressirize Yellow hydraulic system (Ref. 29-10-00, P. Block 301) and prohibit its pressurization by displaying warning notices :
- on Yellow hydraulic system ground connectors.
- on panel 427VU, to prohibit energization of power transfer unit (right PTU pushbutton switch).

(8)Depressurize hydraulic reservoir concerned

(a)For removal of Normal brake servovalves 13GG to 20GG.
Depressurize Green hydraulic reservoir (Ref. 29-14-00, P. Block 301) and prohibit its pressurization by displaying a warning notice :
- on panel 429VU, to prohibit APU starting
- on reservoir pressurization connector.

(b)For removal of Alternate brake servovalves 75GG to 78GG.
Depressurize Yellow hydraulic reservoir (Ref. 29-14-00, P. Block 301) and prohibit its pressurization by displaying a warning notice :
- on panel 429VU, to prohibit APU starting
- on reservoir pressurization connector.

(9)For removal of Alternate Servovalves 75GG to 78GG : depressurize brake Yellow power accumulators (3125 and 3126) by means of pressure relief valve manual control located on Yellow manifold 3060.

(10)For removal of servovalves 13GG to 20GG
Open, safety and tag the following circuit breakers :

PANEL	SERVICE	IDENT.	LOCATION
133VU	HYDRAULIC/BRAKES/FAN/CTL	17GS	331/V53
133VU	HYDRAULIC/TIRE/PRESS	1GV	333/T54
133VU	HYDRAULIC/BRAKES/TEMP/WARN	17GW	331/V54
133VU	HYDRAULIC/BRAKES/TEMP/DET/UNIT	1GW	335/R58
133VU	HYDRAULIC/BRAKES SYSTEM/CTL UNIT/ CTL &/WARN	5GG	333/T56
133VU	HYDRAULIC/BRAKES SYSTEM/CTL UNIT/LAND/	98GG	333/T55

PANEL	SERVICE	IDENT.	LOCATION
	RECOVERY/SUPPLY		
133VU	HYDRAULIC/BRAKES SYSTEM/CTL UNIT/NORM	4GG	331/V55
133VU	HYDRAULIC/BRAKES SYSTEM/CTL UNIT/SUPPLY	42GG	331/V56
133VU	HYDRAULIC/BRAKES SYSTEM/CTL UNIT/NORM	2GG	332/U55
133VU	HYDRAULIC/BRAKES SYSTEM/CTL UNIT/SUPPLY	41GG	332/U56
133VU	HYDRAULIC/AUTO BRK	95GG	335/R57
133VU	HYDRAULIC/ELEC/PUMPS/WARN	4GE	331/V60

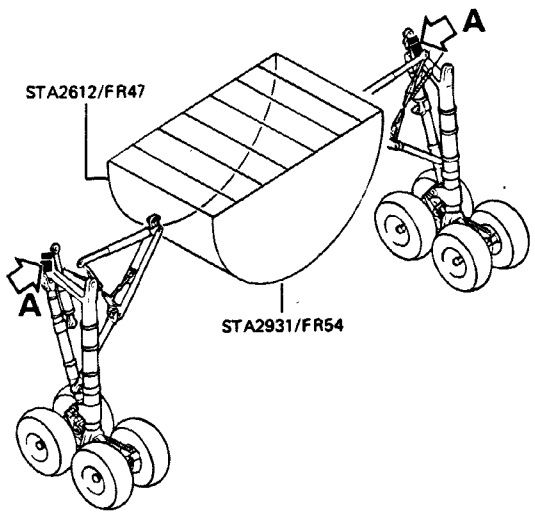
For removal of servovalves 75GG to 78GG :
Open, safety and tag the following circuit breakers :

PANEL	SERVICE	IDENT.	LOCATION
133VU	HYDRAULIC/BRAKES/FAN/CTL	17GS	331/V53
133VU	HYDRAULIC/TIRE/PRESS	1GV	333/T54
133VU	HYDRAULIC/BRAKES/TEMP/WARN	17GW	331/V54
133VU	HYDRAULIC/BRAKES/TEMP/DET/UNIT	1GW	335/R58
133VU	HYDRAULIC/BRAKES SYSTEM/CTL UNIT/ CTL &/WARN	5GG	333/T56
133VU	HYDRAULIC/BRAKES SYSTEM/CTL UNIT/LAND/ RECOVERY/SUPPLY	98GG	333/T55
133VU	HYDRAULIC/BRAKES SYSTEM/CTL UNIT/NORM	4GG	331/V55
133VU	HYDRAULIC/BRAKES SYSTEM/CTL UNIT/SUPPLY	42GG	331/V56
133VU	HYDRAULIC/BRAKES SYSTEM/CTL UNIT/NORM	2GG	332/U55
133VU	HYDRAULIC/BRAKES SYSTEM/CTL UNIT/SUPPLY	41GG	332/U56
133VU	HYDRAULIC/AUTO BRK	95GG	335/R57
133VU	HYDRAULIC/ACCU PRESS/CTL &/CARGO DOOR/ PUMP	7GX	333/T51

(11)Install hydraulic fluid container.

B. Removal
(Ref. Fig. 401, 402)
(Ref. Fig. 403)
(1)Disconnect electrical connector (1) and install blanking caps on connector (1) and servovalve (3).
(2)Loosen the four attaching screws (2) of servovalve (3) located on braking manifold (6).
(3)Remove screws (2).
(4)Remove servovalve (3).
(5)Discard packings (4) and rings (5).
(6)Blank open ports with blanking plugs.
(7)Install removed servovalve (3) on a clean storage plate.
WARNING : TAKE ALL NECESSARY PRECAUTIONS TO PREVENT CONTAMINATION THROUGH SERVOVALVE ORIFICES.

C. Preparation of Replacement Component
(1)Depreserve replacement servovalve by removing external coverings and

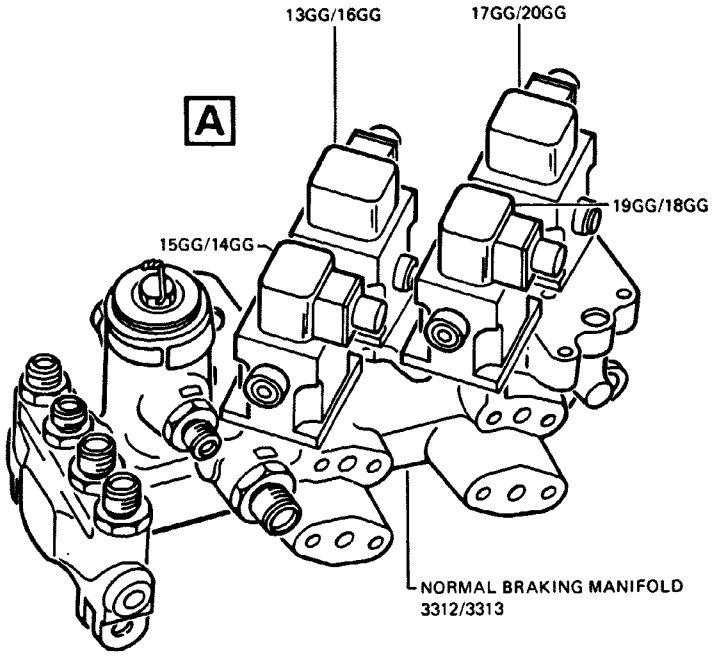


LEFT GEAR

SERVO-VALVE	WHEEL POSITION
17GG	1
13GG	2
19GG	5
15GG	6

RIGHT GEAR

SERVO-VALVE	WHEEL POSITION
14GG	3
18GG	4
16GG	7
20GG	8



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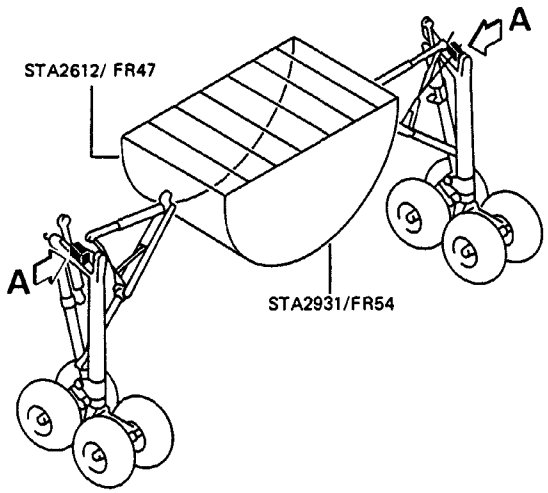
Normal Brake Servovalves/Wheel Position (Green Hydraulic System)
Figure 401

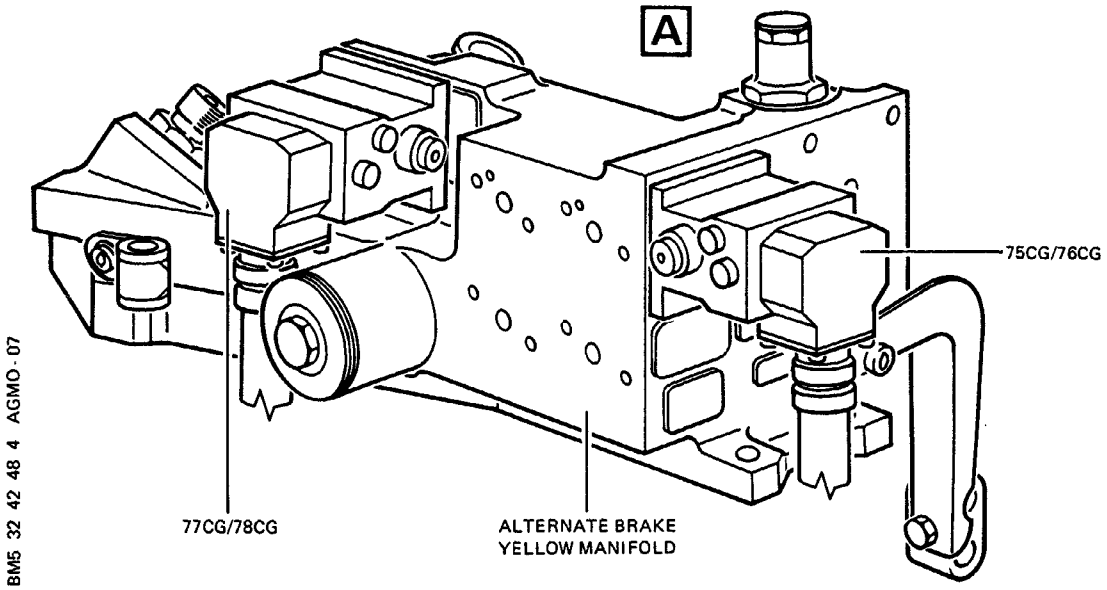


LEFT GEAR

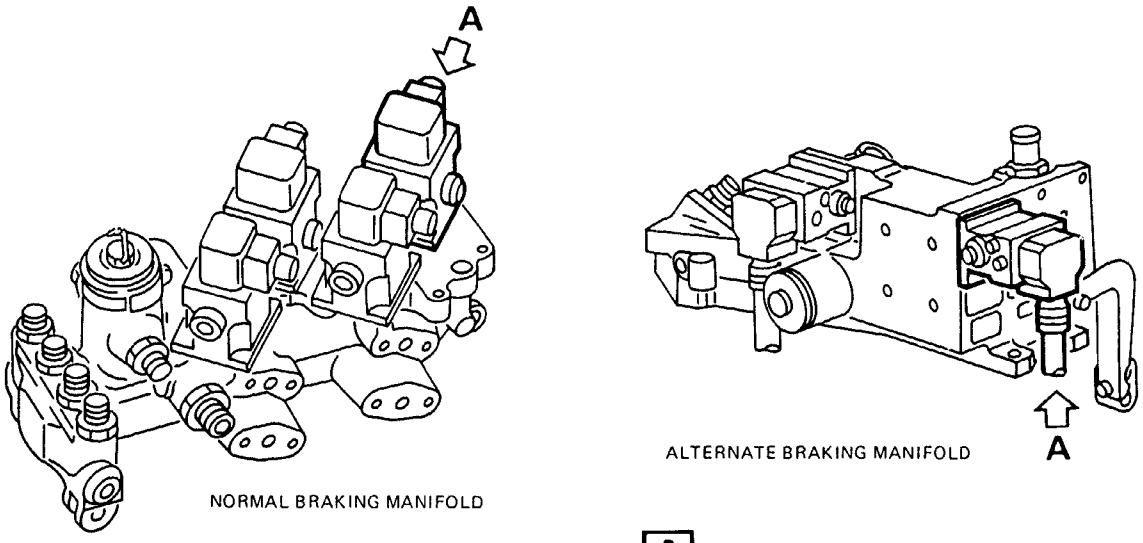
SERVO-VALVE	WHEEL
77CG	5, 6
75CG	1, 2

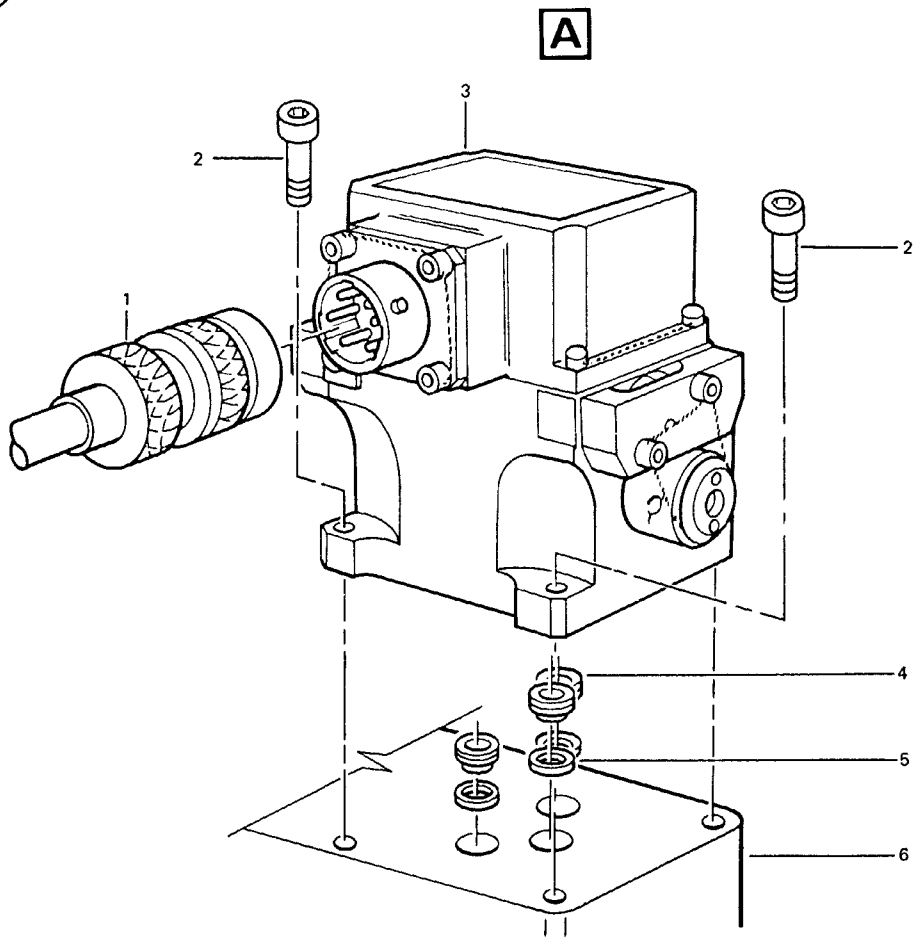
RIGHT GEAR

SERVO-VALVE	WHEEL
78CG	7, 8
76CG	3, 4



Alternate Brake Servovalves/Wheel Position (Yellow Hydraulic System)
Figure 402





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Servovalve - Removal/Installation
Figure 403

storage plate.
(2)Clean servovalve (3) and brake manifold (6) contact surfaces with Material No. 11-002 (Ref. 20-31-00). Dry with filtered compressed air.
(3)Check that connector is not blanked.
WARNING : TAKE ALL NECESSARY PRECAUTIONS TO PREVENT CONTAMINATION THROUGH SERVOVALVE ORIFICES.

D. Installation
(1)Make certain that packings (4) and rings (5) are correctly installed in replacement servovalve (3).
(2)Position servovalve (3) on manifold (6) engaging locating stud in its recess.
(3)Secure servovalve (3) with screws (2). TORQUE screws (2) to between 0.35 and 0.45 m.daN (2.58 and 3.31 lbf.ft.).
(4)Remove blanking plug and connect electrical connector (1).
(5)Bleed braking system from flight compartment :
- Normal system (Ref. 32-42-00, P. Block 301) after removal of servovalves 13GG to 20GG.
- Alternate system (Ref. 32-43-00, P. Block 301) after removal of servovalves 75GG to 78GG.

E. Tests
- Carry out functional test of Normal or Alternate Servovalve, depending on brake system concerned. (Ref. 32-42-48, P. Block 501).
Check servovalve for leakage during initial pressurization and upon completion of tests.

F. Close-Up
(1)Make certain that working area is clean and clear of tools and miscellaneous items of equipment.
(2)Remove hydraulic fluid container.
(3)Pressurize hydraulic reservoirs (Ref. 29-14-00, P. Block 301).
(4)Remove safety clips and tags and close circuit breakers 4GE and 7GX and BRAKES circuit breakers located on panel 133VU.
WARNING : MAKE CERTAIN THAT DOOR TRAVEL RANGES ARE CLEAR.
(5)Close landing gear doors (Ref. 32-12-11, P. Block 301).
(6)Replenish reservoirs as necessary (Ref. 12-12-29, P. Block 1).
(7)Remove warning notices.
(8)Close access panels, remove access platform and safety barriers.
(9)Remove all ground handling equipment and maintenance equipment, standard and special tools.
(10)Remove all ground power and replenishing equipment, all access equipment and miscellaneous items.

WARNING : CHECK THAT THE LANDING GEAR GROUND SAFETIES INCLUDING WHEEL CHOCKS ARE IN POSITION.
BEFORE APPLYING OR RELIEVING HYDRAULIC SYSTEM PRESSURE, MAKE CERTAIN THAT THE TRAVEL RANGES OF THE CONTROL SURFACES ARE CLEAR.
BEFORE PRESSURIZING HYDRAULIC SYSTEMS, CHECK THAT ALL CONTROLS ARE SET TO CORRESPOND WITH THE ACTUAL POSITION OF THE SERVICES THEY OPERATE.

1. Operational Test of Normal Servovalve (13GG to 20GG)

A. Reason for the Job
(1)Operational test of Normal servovalve (Check of coil associated with pedal position transmitter).
NOTE : This test may be performed following overheating of a brake unit during landing when Normal braking procedure was used.

B. Equipment and Materials

ITEM	DESIGNATION
(1)	Warning Notices
Referenced Procedures	
- 24-41-00, P. Block 301	AC External Power Control
- 29-21-00, P. Block 301	Green Auxiliary Power

C. Procedure
(1)Job set-up
(a)Make certain that landing gear Normal control lever is in **DOWN** position and prohibit its operation by displaying a warning notice.
(b)Make certain that **PARKING BRAKE** control handle is in Normal (released) position and prohibit its operation by displaying a warning notice.
(c)Make certain that the circuit breakers associated with braking system (circuit **GG**) are closed.
(2)Test
(a)Energize the aircraft electrical network (Ref. 24-41-00, P. Block 301).
- Make certain that electronics racks ventilation is correct.
(b)Pressurize Green auxiliary system using Green electric pumps (Ref. 29-21-00, P. Block 301).
(c)On panel 401VU
- place **BRK/A/SKID** switch in **NORM/ON** Position.
(d)Depress Captain's or First Officer's left pedal
- On right main gear brakes, make certain that all pistons are in retracted position.
- on left main gear brakes, make certain that pistons supplied by Green system are in extended position.
(e)Release left pedal and depress right pedal
- On left main gear brakes, make certain that all pistons are in retracted position.

- On right main gear brakes, make certain that pistons supplied by Green system are in extended position.

(f) Shut down Green electric pumps (Ref. 29-21-00, P. Block 301).

(3) Close-up

(a) De-energize the aircraft electrical network (Ref. 24-41-00, P. Block 301).

(b) Remove warning notices.

(c) Make certain that working area is clean and clear of tools and miscellaneous items of equipment.

2. Functional Test of Normal Servovalve (13GG to 20GG)

A. Reason for the Job
(1)Test of Normal servovalve after replacement

B. Equipment and Materials

ITEM	DESIGNATION
(1)	Warning Notices
(2)	Pressure Gages
Referenced Procedures	
- 24-41-00, P. Block 301	AC External Power Control
- 29-21-00, P. Block 301	Green Auxiliary Power

C. Procedure
(1)Job set-up
(a)Make certain that landing gear control lever is in **DOWN** position and prohibit its operation by displaying a warning notice.
(b)Make certain that **PARKING BRAKE** control handle is in Normal (released) position and prohibit its operation by displaying a warning notice.
(c)Install a pressure gage downstream of each Normal servovalve on the landing gear concerned.
(d)Make certain that the circuit breakers associated with braking system (circuit GG) are closed.
(2)Test
(a)Energize the aircraft electrical network (Ref. 24-41-00, P. Block 301).
- Make certain that electronics racks ventilation is correct.
(b)Pressurize Green auxiliary system using Green electric pumps (Ref. 29-21-00, P. Block 301).
(c)On panel 401VU
- place **BRK/A/SKID** switch in **NORM/ON** Position.
(d)With pedals fully depressed, check that for a supply pressure greater than 206 bars (2988 psi) :
R - Maximum pressure supplied to brakes is 190 + 0 - 10 bars (2757
R + 0 - 145 psi)
(e)Release pedals
With pedals released, check that Normal braking pressure drops to zero.
(f)Depress Captain's or First Officer's pedal corresponding to landing gear concerned to obtain a pressure downstream of servovalves of 30 bars (435 psi), 60 bars (870 psi) then 90 bars (1305 psi).
- check that the pressure delivered by all four servovalves of the landing gear concerned corresponds to these values.
(g)Shut down Green electric pumps (Ref. 29-21-00, P. Block 301).
(3)Close-up
(a)De-energize the aircraft electrical network (Ref. 24-41-00, P. Block 301).
(b)Remove pressure gages installed downstream of servovalves.
(c)Remove warning notices.
(d)Make certain that working area is clean and clear of tools and miscellaneous items of equipment.

3. Functional Test of Alternate Servovalve (75GG to 78GG)

A. Reason for the Job
(1)Test of an Alternate servovalve after replacement.

B. Equipment and Materials

ITEM	DESIGNATION
(1)	Warning Notices
(2)	Pressure Gage
Referenced Procedures	
- 24-41-00, P. Block 301	AC External Power Control
- 29-21-00, P. Block 301	Green Auxiliary Power
- 29-23-00, P. Block 301	Yellow Auxiliary Power (Power Transfer Unit)

C. Procedure
(1)Job Set-up
(a)Make certain that landing gear control lever is in **DOWN** position and prohibit its operation by displaying a warning notice.
(b)Make certain that **PARKING BRAKE** control handle is in Normal (released) position and prohibit its operation by displaying a warning notice.
(c)Install a pressure gage downstream of Alternate servovalve to be checked.
(2)Test
(a)Energize the aircraft electrical network (Ref. 24-41-00, P. Block 301).
- Make certain that electronics racks ventilation is correct.
(b)Pressurize Green auxiliary system using Green electric pumps (Ref. 29-21-00, P. Block 301).
(c)Pressurize Yellow auxiliary system using Green/Yellow transfer unit (Ref. 29-23-00, P. Block 301).
(d)On panel 401VU
- place **BRK/A/SKID** switch 96GG in **ALTN/ON** position.
(e)With pedals fully depressed check that for a supply pressure of 206 bars (2988 psi) :
- Maximum pressure supplied to brakes is 175 ± 10 bars (2538 ± 145 psi).
(f)Release pedals
With pedals released, check on pressure gage that pressure drops to zero.
(g)On panel 401VU
- place **BRK/A/SKID** switch 96GG in **NORM/ON** position.
(h)Shut down Green/Yellow transfer unit (Ref. 29-23-00, P. Block 301).
(j)Shut down Green electric pumps (Ref. 29-21-00, P. Block 301).
(3)Close-up
(a)De-energize the aircraft electrical network (Ref. 24-41-00, P. Block 301).
(b)Remove pressure gage
(c)Remove warning notices
(d)Make certain that working area is clean and clear of tools and miscellaneous items of equipment.

MAIN GEAR TACHOMETER (21GG TO 28GG) - REMOVAL/INSTALLATION

R WARNING : MAKE CERTAIN THAT LANDING GEAR GROUND SAFETIES INCLUDING WHEEL CHOCKS ARE IN POSITION.

1. Reason for the Job

A. Removal of faulty tachometer for replacement.

B. Removal of tachometer to gain access to electrical connector for test (insulation test).

**ON A/C 101-200,

2. Equipment and Materials

ITEM	DESIGNATION
A. H21966	Extractor
or	
H21966-1000	Extractor
or	
B. 246800-78	Extractor
C.	Locating Pin
D.	Corrosion Resistant Steel Lockwire - Dia. 0.8 mm (0.035 in.)
E.	Wheel Chocks
F. Material No. 04-003	Common Greases (Ref. 20-31-00)
G. Material No. 04-004	Common Greases (Ref. 20-31-00)
H. Material No. 04-022	Common Greases (Ref. 20-31-00)
Referenced Procedure	
- 32-42-00, P. Block 501	Normal Braking

3.Procedure

**ON A/C ALL

Post SB 32-2058 For A/C 101-200,

2. Equipment and Materials

ITEM	DESIGNATION
A. H21966	Extractor
or	
H21966-1000	Extractor
B. MG174-04	Disassembly Tool
C.	Wheel Chocks
D.	Corrosion Resistant Steel Lockwire -

ITEM	DESIGNATION
	Dia. 0.8 mm(0.032 in.)
E. Material No. 04-003	Common Greases (Ref. 20-31-00)
F. Material No. 04-004	Common Greases (Ref. 20-31-00)
H. Material No. 04-022	Common Greases (Ref. 20-31-00)
J.	Circuit Breaker Safety Clips
K.	Warning Notice
Referenced Procedures	
- 32-42-00, P. Block 501	Normal Braking
- 32-48-00, P. Block 501	Brake Cooling
- 32-48-11, P. Block 601	Brake Fan
- 32-49-00, P. Block 501	Tire Pressure Indicating System
- ESPM 20-42-12	Shrink Sleeves

3.Procedure

R **ON A/C 001-100, 105-200,

R Post SB 32-2108 For A/C 001-100,105-200,

NOTE : Remove and discard heat-shrinkable sleeve when you disconnect electrical connector from tachometer.
During installation, do not forget to install a new heat-shrinkable sleeve on connector of tachometer.

**ON A/C 101-200,

A. Job Set-Up (Ref. Fig. 401)
(1)Make certain that wheel chocks are in position.
(2)Loosen nut (1) securing clamp (2).
(3)Remove shroud assembly (12).
WARNING : DRAW SHROUD ASSEMBLY ALONG WHEEL AXLE CENTERLINE TO AVOID DAMAGING TACHOMETER DRIVE SHAFT.
(4)Remove cotter pins (3), nuts (11), washers (4) and bolts (5).

**ON A/C ALL

Post SB 32-2058 For A/C 101-200,

A. Job Set-Up
(1)Position wheel chocks
(2)On panel 400VU
- make certain that ON legend on BRK HOT indicating and fan control pushbutton switch 30GW is off and prohibit its operation by

displaying a warning notice
(3)Open, safety and tag the following circuit breaker :

PANEL	SERVICE	IDENT.	LOCATION
133VU	HYDRAULIC/BRAKE/FAN/CTL	17GS	331/V53

(4)Make certain that circuit breaker associated with fan to be removed is open, safetied and tagged

PANEL	SERVICE	IDENT.	LOCATION
133VU	HYDRAULIC/BRAKE FANS/WHEEL/5 & 6	1GS	334/S52
133VU	HYDRAULIC/BRAKE FANS/WHEEL/3 & 4	2GS	335/R55
133VU	HYDRAULIC/BRAKE FANS/WHEEL/1 & 2	3GS	335/R52
133VU	HYDRAULIC/BRAKE FANS/WHEEL/7 & 8	4GS	334/S55

B. Removal

R **ON A/C 001-104,

R Post SB 32-2058 For A/C 101-104,

(Ref. Fig. 402, 404)

**ON A/C 001-100,

Post SB 32-2108 For A/C 001-100,

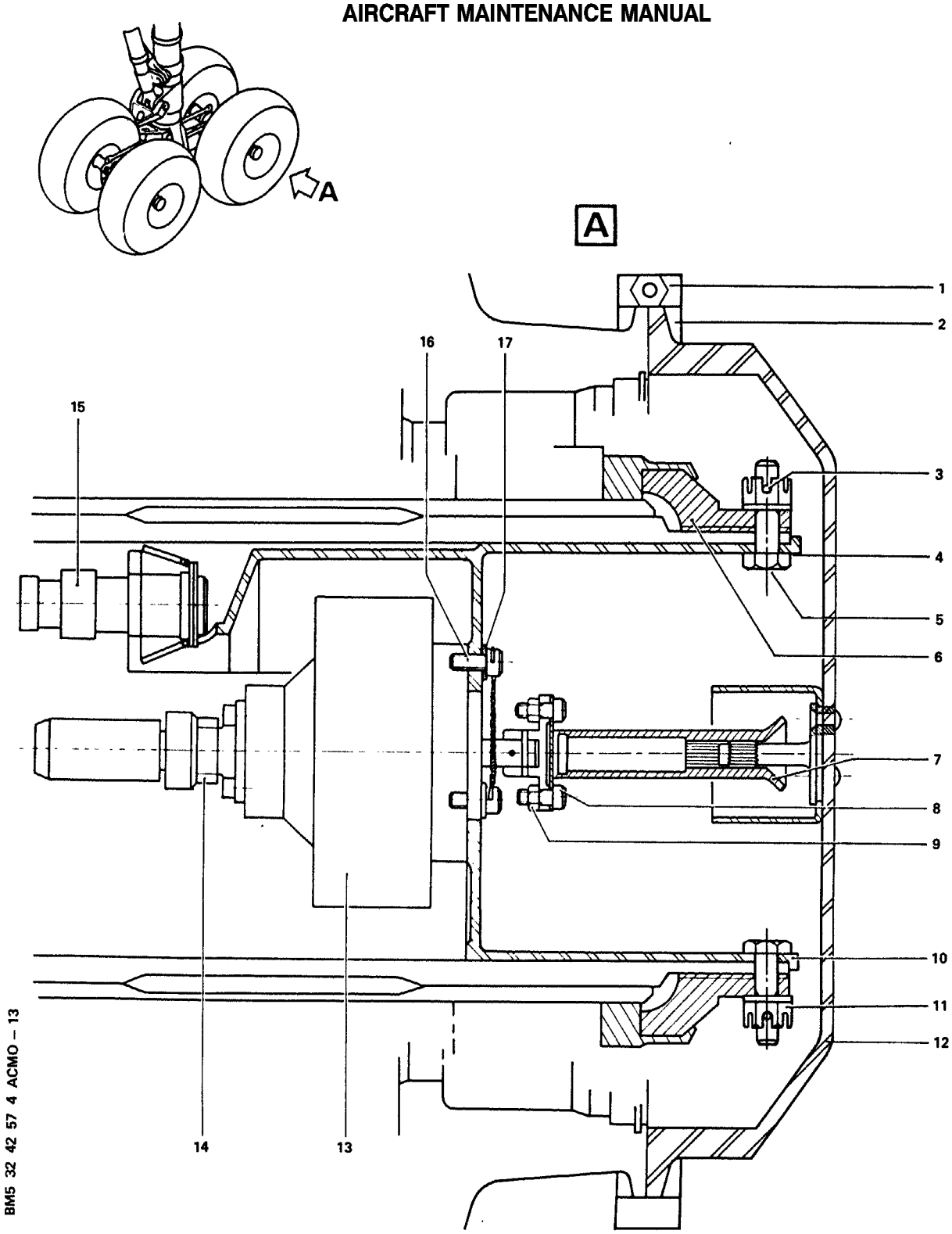
(Ref. Fig. 403, 405)

**ON A/C 101-200,

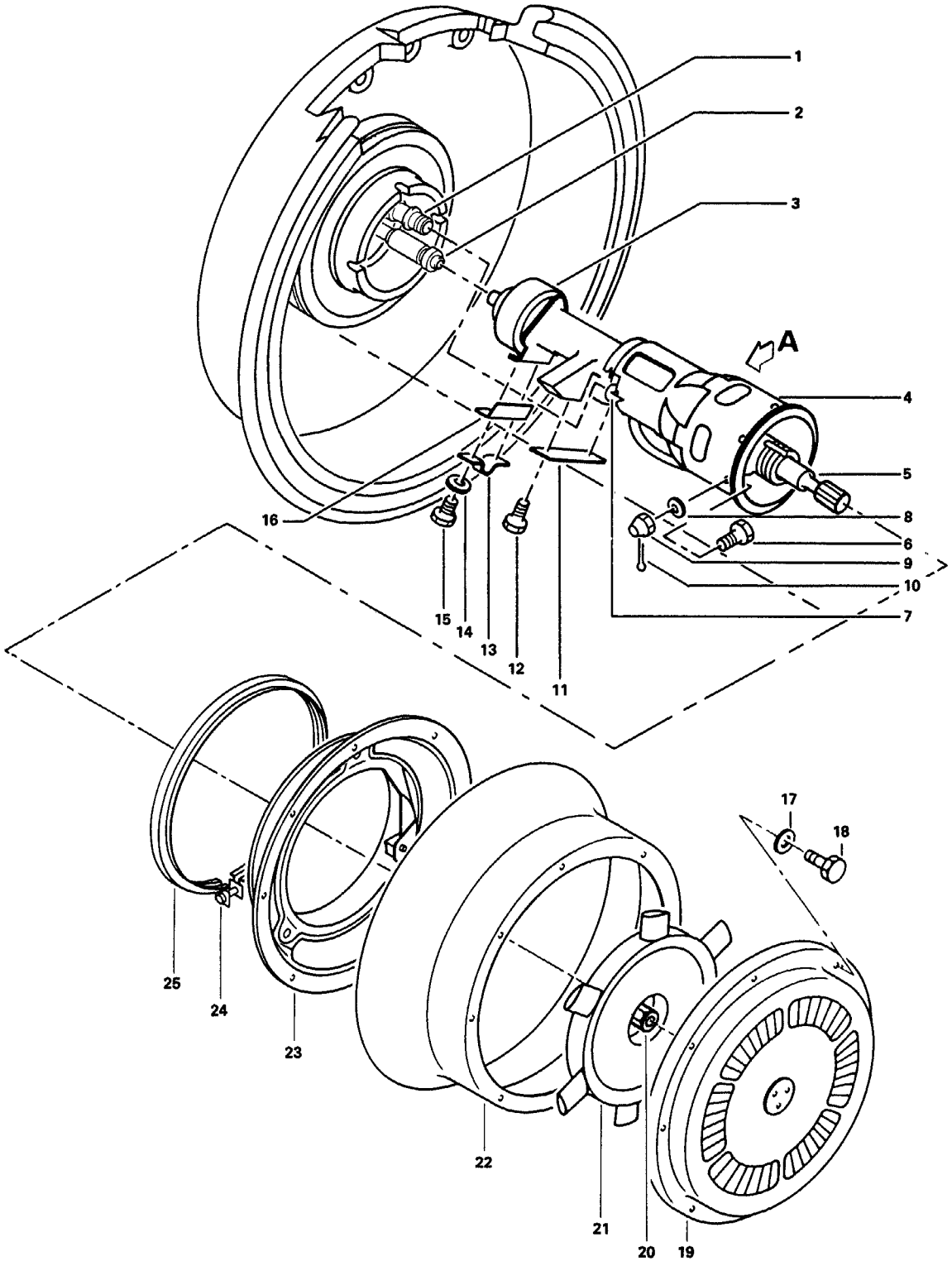
B. Removal
(1)Using extractor, remove tachometer mounting assembly. Support assembly outside axle, then disconnect plug (14) and free plug (15).
(2)Remove screws (16) and washers (17) to separate tachometer (13) and drive shaft (7) from mounting (10).
(3)Remove bolts (8) and nuts (9) to separate tachometer (13) from drive shaft (7).

C. Preparation of Replacement Component
(1)Depreserve replacement tachometer and check for correct condition.
(2)Apply a light coat of Material No. 04-003 on splines of drive shaft (7).

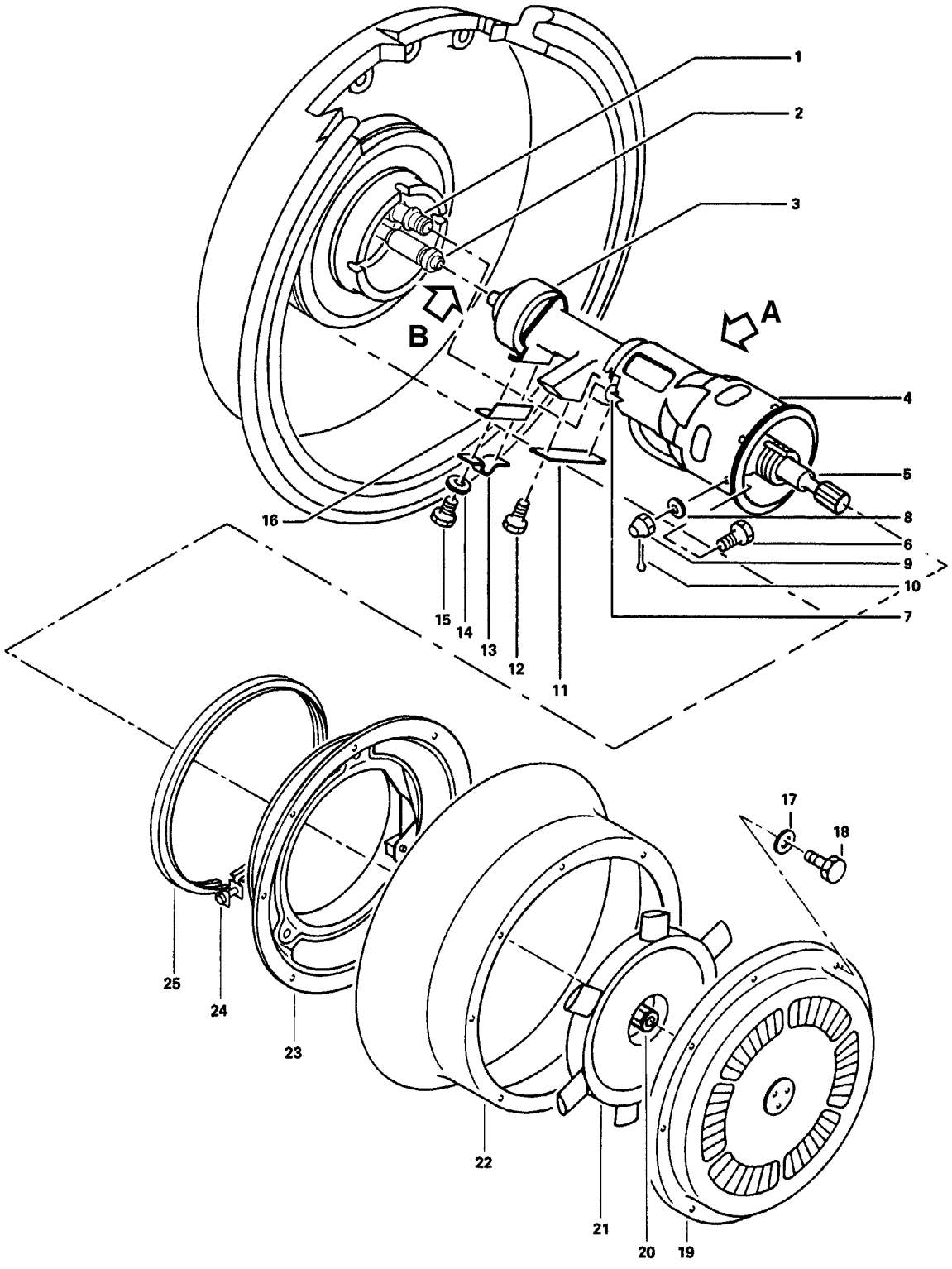
D. Installation
NOTE : Do not mix Material No. 04-004 with Material No. 04-022. You can use Material No. 04-022 as an alternative to Material No. 04-004.



Tachometer - Main Landing Gear
Figure 401



Tachometer Housing
Figure 402



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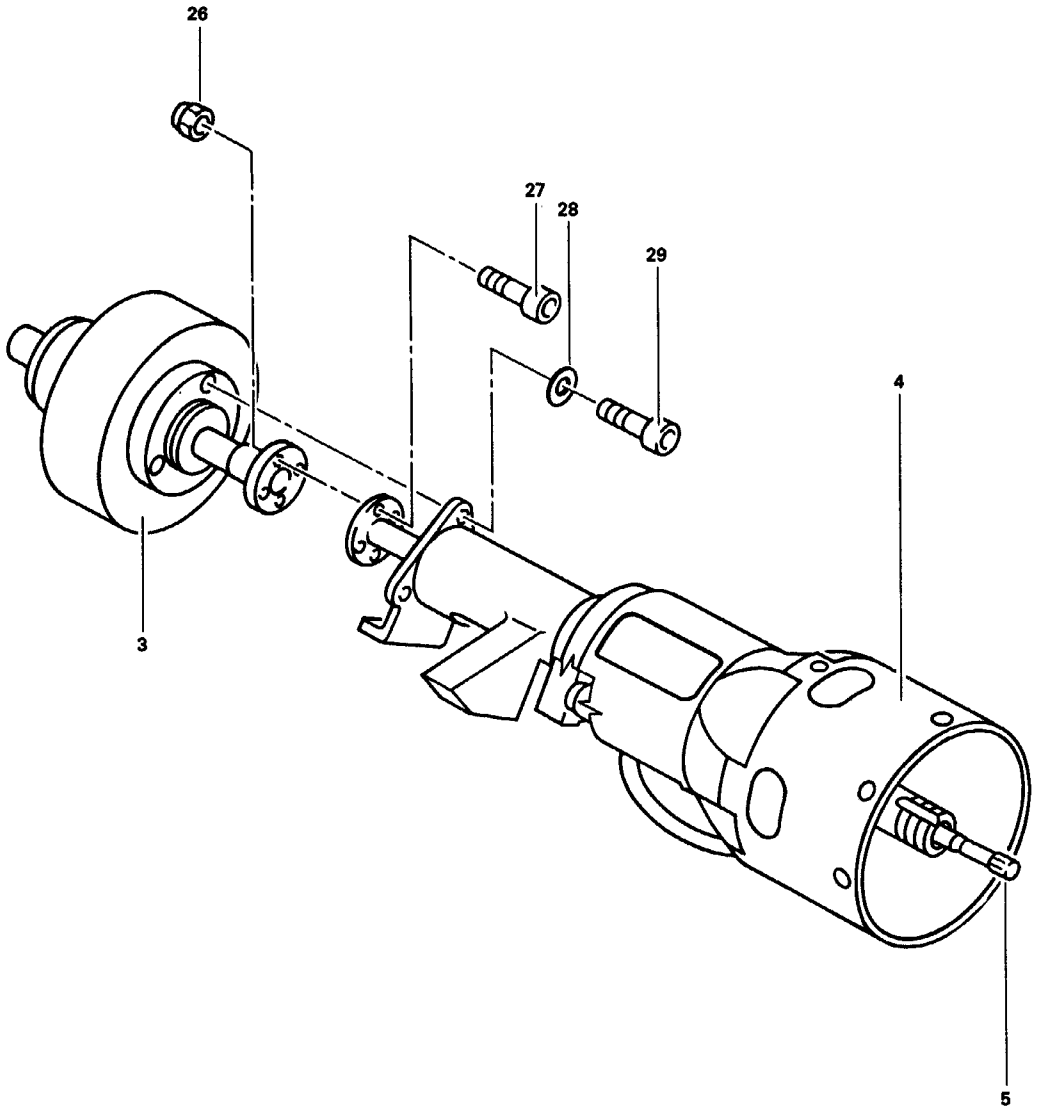
Tachometer Housing
Figure 403



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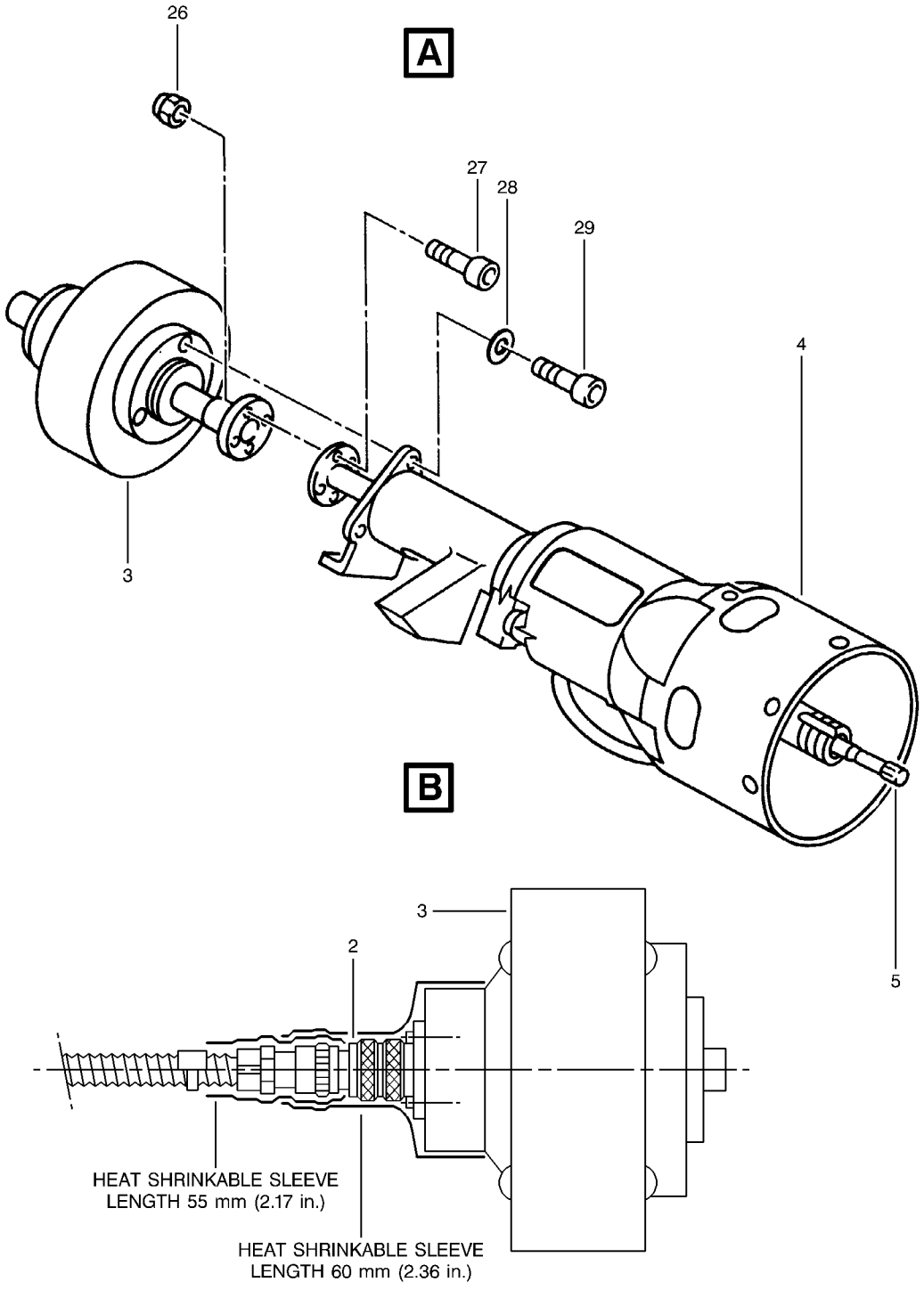
Tachometer
Figure 404



BM5 32 42 57 4 KPZ0 00

Tachometer
Figure 405

Clean and degrease the parts before you use Material No. 04-022.

(1)Apply a coat of Material No. 04-004 or Material No. 04-022 on bolts (8).
(2)Attach tachometer (13) to drive shaft (7) with bolts (8) and nuts (9).
TORQUE to between 0.2 and 0.25 m.daN (1.5 to 1.8 lbf.ft.).
(3)Apply coat of Material No. 04-004 or Material No. 04-022 on screws (16).
(4)Install tachometer/drive shaft assembly on mounting (10) with screws (16) and washers (17).
TORQUE to between 0.2 and 0.25 m.daN (1.5 and 1.8 lbf.ft.).
(5)Connect plug (14) and install plug (15) in its attaching notch.
(6)Install assembly in axle.
(7)Using locating pin, position mounting with respect to wheel nut (6).

R **ON A/C ALL

R Post SB 32-2058 For A/C 101-200,

(1)Cut and remove lockwire and remove screws (18) and washers (17).
(2)Remove debris guard (19).
CAUTION : DRAW DEBRIS GUARD (19) ALONG WHEEL AXLE CENTERLINE TO AVOID DAMAGING TACHOMETER DRIVE SHAFT.
(3)Turn fan (21) counterclockwise and pull axially while unscrewing central nut (20). Remove fan equipped with nut.
(4)Remove shroud (22).
(5)Loosen nut (24) to remove clamp (25). Remove casing (23) and retain clamp (25).

**ON A/C 101-200,

(8)Install bolts (5), washers (4) and nuts (11). Safety nuts (11) with cotter pins (3).
CAUTION : BOLT (5) HEADS SHALL BE INSTALLED INSIDE AXLE.

R **ON A/C ALL

R Post SB 32-2058 For A/C 101-200,

(6)Remove cotter pins and remove nuts (9), washers (8) and bolts (6).
(7)Using extractor H21966, free mounting (4) from axle.
CAUTION : TAKE CARE NOT TO DAMAGE CABLE DURING EXTRACTION OF MOUNTING (4).
CAUTION : DO NOT USE TACHOMETER FOR EXTRACTION.
(8)Disconnect connector (7) from fan connector (1).
(a)Cut and remove lockwire, remove the two screws (12) and retain connector (1) positioning plate (11).
(b)Cut and remove lockwire, remove the two screws (15), retain washers (14), remove clamp (13) and retain plate (16).
(c)Disconnect and remove connector (1).
(9)Disconnect connector (2) from tachometer (3).
(10)Disconnect tachometer (3) and drive shaft (5) from mounting (4).

Remove screws (29) and washers (28).

(11)Disconnect tachometer (3) from drive shaft (5). Remove bolts (27) and nuts (26).

C. Preparation of Replacement Component

(1)Depreserve replacement tachometer and check for correct condition.

(2)Apply a light coat of grease Material No. 04-003 on splines of drive shaft (5).

**ON A/C 101-200,

(9)Coat shroud assembly (12) drive shaft splines with Material No. 04-003.

(10)Position shroud assembly (12).

WARNING : CAREFULLY GUIDE SPLINED SHAFT INTO TACHOMETER SLEEVE.

(11)Apply a coat of Material No. 04-004 or Material No. 04-022 on screws (1).

R **ON A/C 001-104,

R Post SB 32-2058 For A/C 101-104,

D. Installation

NOTE : Do not mix Material No. 04-004 with Material No. 04-022. You can use Material No. 04-022 as an alternative to Material No. 04-004. Clean and degrease the parts before you use Material No. 04-022.

(1)Smear bolts (27) with Material No. 04-004 or Material No. 04-022.

(2)Attach tachometer (3) to drive shaft (5) with bolts (27) and nuts (26). TORQUE nuts (26) to 0.25 m.daN (1.8 lbf. ft.).

(3)Smear screws (29) with Material No. 04-004 or Material No. 04-022.

(4)Install tachometer/drive shaft assembly on mounting (4) with screws (29) and washers (28). TORQUE screws (29) to 0.25 m.daN (1.8 lbf. ft.).

(5)Position mounting with respect to wheel axle.

(6)Connect connector (2) to tachometer (3).

(7)Connect fan connector (7)

(a)Connect connector (1) to fan motor connector (7) and install positionning plate (16).

(b)Install retaining plate (11) maintaining connector in correct position. Safety plate with screws (12). Wirelock screws (12). Insert connector (1) cable in clamp (13). Install clamp (13), washers (14) and screws (15). Tighten screws (15) and wirelock.

(8)Grease inner surface of axle with Material No. 04-004 or Material No. 04-022 over a length of approximately 100 mm (3.94 in.).

(9)Install mounting assembly in its housing taking care to position cables correctly.

NOTE : Slide mounting (4) into axle without forcing.

(10)Align axle holes with holes in mounting (4).

Secure mounting (4) to axle with bolts (6), washers (8) and nuts (9).

CAUTION : BOLT HEADS SHALL BE INSTALLED INSIDE AXLE.
COTTER PIN (10) SHALL BE INSTALLED PERPENDICULAR TO AXLE.

(11)Tighten nuts (9) and install cotter pins.

**ON A/C 001-100,

Post SB 32-2108 For A/C 001-100,

D. Installation

NOTE : Do not mix Material No. 04-004 with Material No. 04-022. You can use Material No. 04-022 as an alternative to Material No. 04-004. Clean and degrease the parts before you use Material No. 04-022.

(1)Smear bolts (27) with Material No. 04-004 or Material No. 04-022.
(2)Attach tachometer (3) to drive shaft (5) with bolts (27) and nuts (26). TORQUE nuts (26) to 0.25 m.daN (1.8 lbf. ft.).
(3)Smear screws (29) with Material No. 04-004 or Material No. 04-022.
(4)Install tachometer/drive shaft assembly on mounting (4) with screws (29) and washers (28). TORQUE screws (29) to 0.25 m.daN (1.8 lbf. ft.).
(5)Position mounting with respect to wheel axle.
(6)Install the heat shrinkable sleeve on the connector (2) (Ref. ESPM 20-42-12).
(7)Apply heat at a temperature of 135 deg. C (275.00 deg. F) minimum at the heat shrinkable sleeve until the heat shrinkable sleeve adjusts to the shape of the parts. Move the heat gun to apply the heat equally over the full surface of the heat shrinkable sleeve.
(8)Install the heat shrinkable sleeve on the connector (2) and tachometer (3) (Ref. ESPM 20-42-12).
(9)Connect connector (2) to tachometer (3).
(10)Apply heat at a temperature of 135 deg. C (275.00 deg. F) minimum at the heat shrinkable sleeve until the heat shrinkable sleeve adjusts to the shape of the parts. Move the heat gun to apply the heat equally over the full surface of the heat shrinkable sleeve.
(11)Connect fan connector (7)
(a)Connect connector (1) to fan motor connector (7) and install positionning plate (16).
(b)Install retaining plate (11) maintaining connector in correct position. Safety plate with screws (12). Wirelock screws (12). Insert connector (1) cable in clamp (13). Install clamp (13), washers (14) and screws (15). Tighten screws (15) and wirelock.
(12)Grease inner surface of axle with Material No. 04-004 or Material No. 04-022 over a length of approximately 100 mm (3.94 in.).
(13)Install mounting assembly in its housing taking care to position cables correctly.
NOTE : Slide mounting (4) into axle without forcing.
(14)Align axle holes with holes in mounting (4).
Secure mounting (4) to axle with bolts (6), washers (8) and nuts (9).
CAUTION : BOLT HEADS SHALL BE INSTALLED INSIDE AXLE.
COTTER PIN (10) SHALL BE INSTALLED PERPENDICULAR TO AXLE.
(15)Tighten nuts (9) and install cotter pins.

**ON A/C 101-200,

(12)Secure shroud assembly (12) with clamp (2) and TORQUE nut (1) to between 0.28 and 0.34 m.daN (25 and 30 lbf. in.).

**ON A/C 001-104,

Post SB 32-2058 For A/C 101-104,

(12)Install casing (23) by correctly engaging drive key. Secure casing (23) to wheel using clamp (25). Tighten clamp (25) with nut (24). TORQUE nut to 5.8 m.daN (51 lbf.in.).
NOTE : Casing (23) shall bear against wheel over its full circumference.
(13)Grease fan drive shaft with Material No. 04-003.
(14)Install fan (21). TORQUE fan nut (20) to 3.4 m.daN (25.08 lbf.ft.) and wirelock.
(15)Position debris guard (19).
(a)Grease tachometer drive shaft splines with Material 04-003.
(b)Debris guard (19) must bear against shroud (22).
(c)Secure debris guard (19) to casing (23) thus immobilizing shroud (22) (check that it is correctly positioned with respect to wheel).
(d)Make certain that tachometer drive shaft splines are correctly engaged. Install washers (17) and screws (18). TORQUE screws (18) to 0.25 m.daN (22.12 lbf. in.)

**ON A/C 001-100,

Post SB 32-2108 For A/C 001-100,

(16)Install casing (23) by correctly engaging drive key. Secure casing (23) to wheel using clamp (25). Tighten clamp (25) with nut (24). TORQUE nut to 5.8 m.daN (51 lbf.in.).
NOTE : Casing (23) shall bear against wheel over its full circumference.
(17)Grease fan drive shaft with Material No. 04-003.
(18)Install fan (21). TORQUE fan nut (20) to 3.4 m.daN (25.08 lbf.ft.) and wirelock.
(19)Position debris guard (19).
(a)Grease tachometer drive shaft splines with Material 04-003.
(b)Debris guard (19) must bear against shroud (22).
(c)Secure debris guard (19) to casing (23) thus immobilizing shroud (22) (check that it is correctly positioned with respect to wheel).
(d)Make certain that tachometer drive shaft splines are correctly engaged. Install washers (17) and screws (18). TORQUE screws (18) to 0.25 m.daN (22.12 lbf. in.)

**ON A/C 101-200,

E. Tests
R (1)Do operational test of Anti-Skid system from maintenance panel (Ref. 32-42-00, P. Block 501).

F. Close-Up
(1)Make certain that working area is clean and clear of tools and miscellaneous items of equipment.

**ON A/C 001-104,

Post SB 32-2058 For A/C 101-104,

(16)Make certain that fan operates correctly (Ref. 32-48-11, P. Block 601).
(17)Remove wheel chocks from wheels of main landing gear concerned.
(18)Remove safety clips and tags and close circuit breaker 17GS.
(19)Remove safety clips and tag and close circuit breaker 1GS, 2GS, 3GS or 4GS associated with removed fan.

E. Tests
(1)Perform fan functional test (Ref. 32-48-00, P. Block 501).
fan functional test (Ref. 32-48-00, P. Block 501).
R (2)Do operational test of Anti-Skid system from maintenance panel (Ref. 32-42-00, P. Block 501).

F. Close-Up
(1)Remove warning notices.
(2)Make certain that working area is clean and clear of tools and miscellaneous items of equipment.

**ON A/C 001-100,

Post SB 32-2108 For A/C 001-100,

(20)Make certain that fan operates correctly (Ref. 32-48-11, P. Block 601).
(21)Remove wheel chocks from wheels of main landing gear concerned.
(22)Remove safety clips and tags and close circuit breaker 17GS.
(23)Remove safety clips and tag and close circuit breaker 1GS, 2GS, 3GS or 4GS associated with removed fan.

E. Tests
(1)Perform fan functional test (Ref. 32-48-00, P. Block 501).
R (2)Do operational test of Anti-Skid system from maintenance panel (Ref. 32-42-00, P. Block 501).

F. Close-Up
(1)Remove warning notices.
(2)Make certain that working area is clean and clear of tools and miscellaneous items of equipment.

NOSE GEAR TACHOMETER - REMOVAL/INSTALLATION

WARNING : CHECK THAT LANDING GEAR GROUND SAFETIES INCLUDING WHEEL CHOCKS ARE IN POSITION.

1. Reason for the Job

A. Removal for replacement of faulty tachometer

B. Removal to gain access to electrical plug for testing (Insulation Test)

2. Equipment and Materials

ITEM	DESIGNATION
A. H21935	Extractor - Tachometer
or	
B. H21965	Extractor - Tachometer
C. 245900-78	Locating Pin
D.	Lockwire - Corrosion Steel Resistant 0.8 mm (0.035 in.) dia.
E.	Wheel Chocks
F. Material No. 04-004	Common Greases (Ref. 20-31-00)
Referenced Procedure - 32-42-00, P. Block 501	Normal Braking

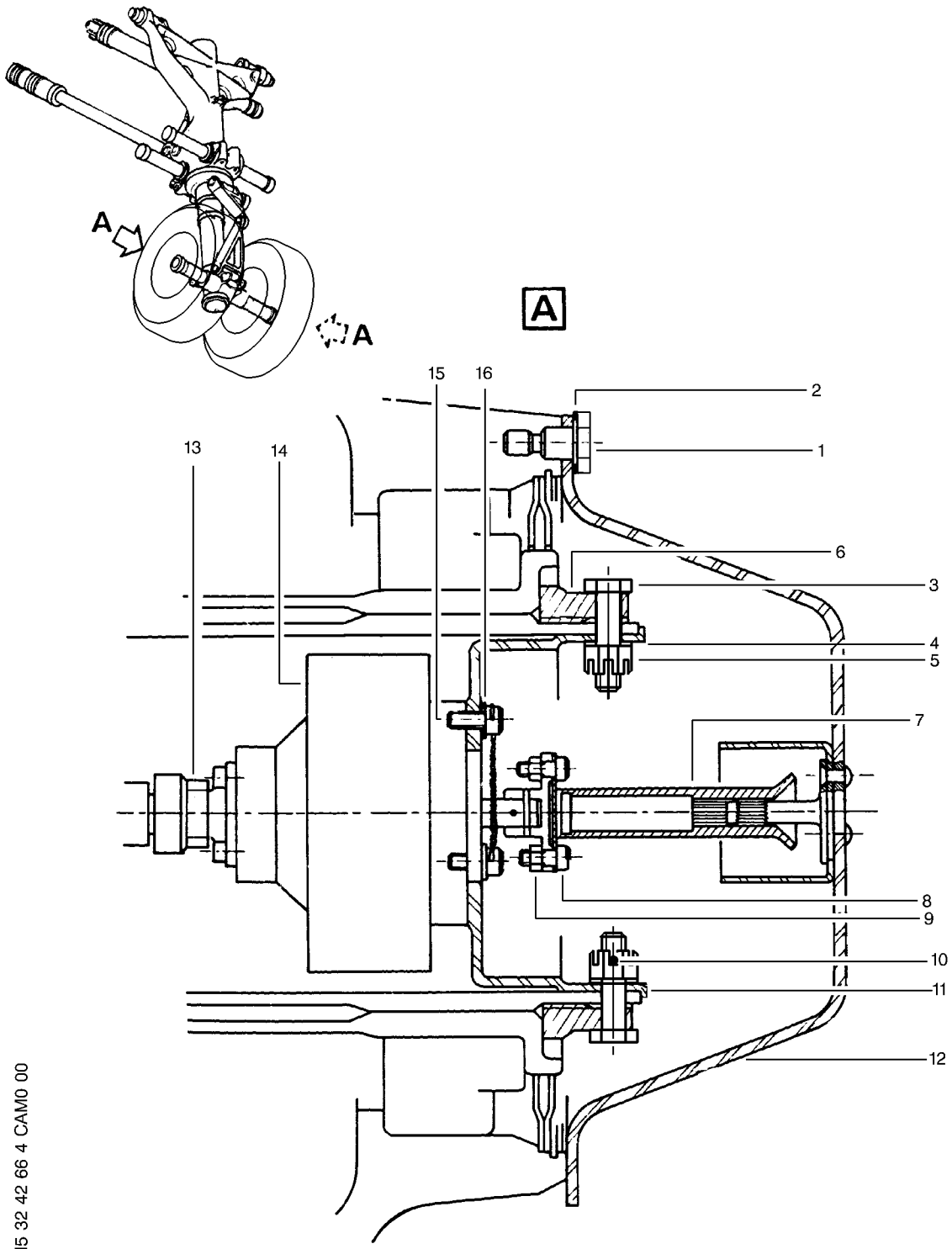
3. Procedure

A. Job Set-Up

R (Ref. Fig. 401)

R (1)Make certain that wheel chocks are in position. *
R (2)Cut and remove lockwire and remove screws (17). Retain washers (18). *
R (3)Remove shroud assy (16) and the two half grommets (24) and (25). *
R CAUTION : DRAW SHROUD ASSY (16) ALONG AXLE CENTERLINE TO AVOID DAMAGING TACHOMETER DRIVE SHAFT.
R (4)Disconnect electrical connector (15) from rotating transformer and install blanking caps on electrical connector (15) and receptacle (12). *
R (5)Attach electrical cable (26) to wheel using binding cord. *

R B. Removal
R (1)Cut and remove lockwire and remove screws (19), washers (20) and casing (22).
R (2)Remove cotter pins, nuts (7), washers (8) and remove bolts (14).
R (3)Free housing (9) from axle using extractor H21965.
R CAUTION : TAKE CARE NOT TO DAMAGE CABLE DURING EXTRACTION OF HOUSING (9).
R CAUTION : DO NOT USE TACHOMETER OR TPIS ROTATING PARTS FOR EXTRACTION.
R (4)Disconnect connector (32) from T.P.I.S connector (27).
R (5)Disconnect connector (33) from tachometer connector (31).
R (6)Remove and discard self locking nuts (3). Retain washers (4) and



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Nose Gear Tachometer
Figure 401

R

R remove T.P.I.S connector (27) base from housing (9).
R (7)Remove transmission unit (11) by pressing on studs (10).
R (8)Remove screws (2) and retain washers (1).
R (9)Remove tachometer (30) and remove bolts (6) and self locking nuts
R (5) to remove drive shaft (29). Discard nuts (5).

R C. Preparation of Replacement Component
R (1)Depreserve replacement tachometer and check for correct condition.
R (2)Apply a light coat of grease, Material No.04-004, on all drive shaft
R (29) splines.
R (3)Apply a light coat of Material No.04-004 on bolts (6).
R (4)Depreserve transmission unit and check for correct condition.

R D. Installation
R (1)Lubricate bolts (8) with Material No.04-004.
R (2)Attach tachometer (14) to drive shaft (7) with bolts (8) and nuts (9).
R TORQUE to between 0.2 and 0.25 m.daN (1.5 and 1.8 lbf.ft.).
R (3)Lubricate screws (15) with Material No.04-004.
R (4)Install tachometer/drive shaft assembly in its mounting (11) with screws
R (15) and washers (16). TORQUE to between 0.2 and 0.25 m.daN (1.5 and 1.8
R lbf.ft.).
R (5)Connect plug (13).
R (6)Install assembly in axle.
R (7)Position mounting with respect to wheel nut (6) using locating pin.
R CAUTION : INSTALL BOLTS (3) WITH THE HEAD ON THE OUTSIDE OF THE AXLE
R AND WHEEL RETAINING NUT (6), AS SHOWN IN (Ref. Fig. 401) TO
R AVOID DAMAGE TO THE SHROUD ASSEMBLY BY THE COTTER PIN.
R (8)Install bolts (3), washers (4) and nuts (5). Safety nuts (5) with
R cotter pins (10).
R (9)Lubricate shroud assembly (12) drive shaft splines with Material
R No.04-004.
R (10)Position shroud assembly (12).
R WARNING : CAREFULLY GUIDE SPLINED SHAFT INTO TACHOMETER SLEEVE.
R (11)Lubricate screws (1) with Material No.04-004.
R (12)Secure shroud (12) with screws (1) equipped with washers (2).
R TORQUE to between 0.6 and 0.7 m.daN (4.4 and 5.2 lbf.ft.). Wirelock
R screws (1).

R E. Tests
R (1)Perform test of anti-skid system from maintenance panel. (Ref. 32-42-00,
R P. Block 501).
R (2)Perform nose gear tachometer test (Ref. 32-42-00, P. Block 501).

R F. Close-Up
R (1)Make certain that working area is clean and clear of tools and
R miscellaneous items of equipment.

1. Equipment and Materials

ITEM	DESIGNATION
A.	Circuit Breaker Safety Clips
Referenced Procedure - 24-41-00, P. Block 301	AC External Power Control

2. Procedure

A. Job Set-Up

(1)Open, safety and tag the following circuit breakers :

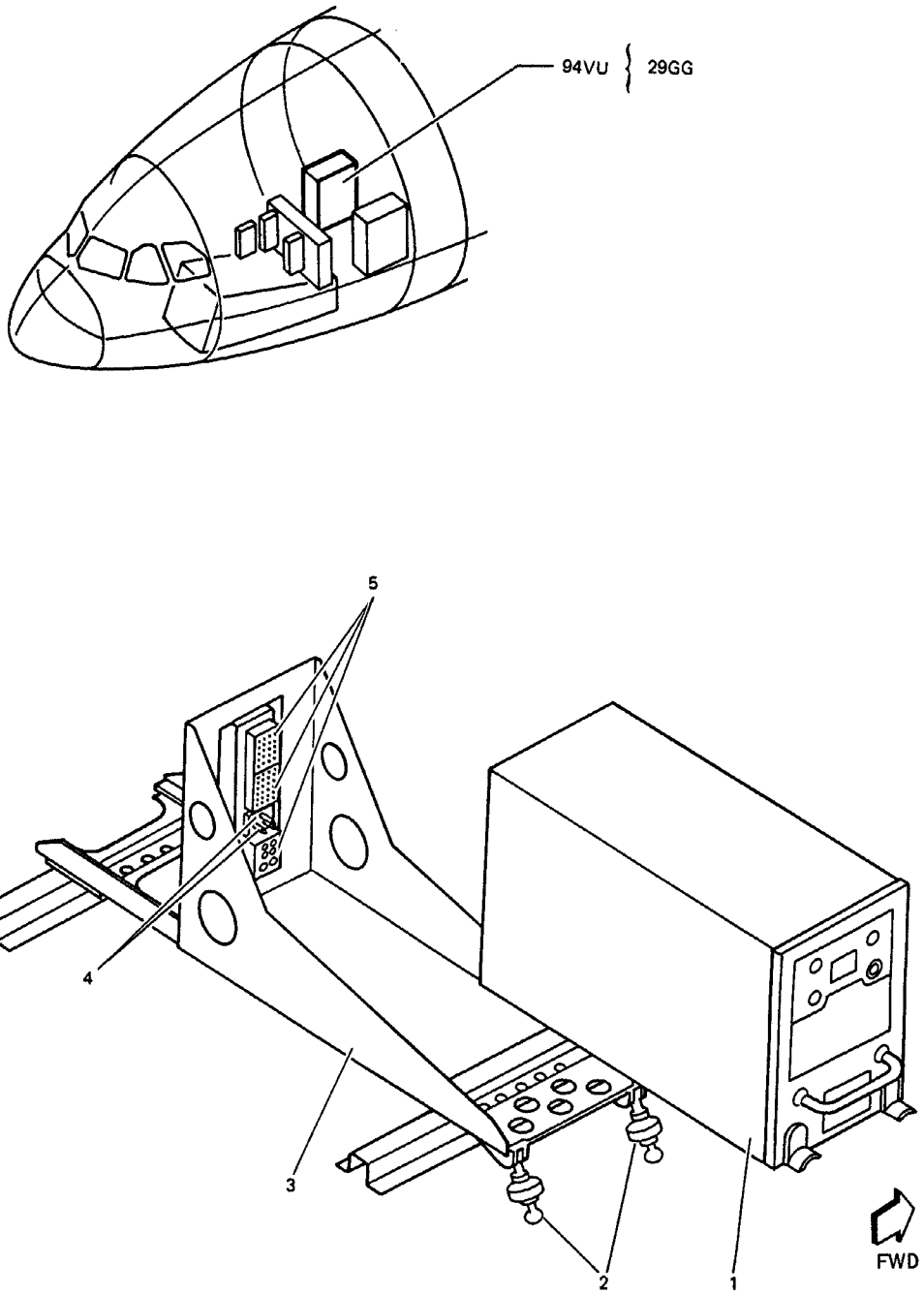
PANEL	SERVICE	IDENT.	LOCATION
133VU	HYDRAULIC/BRAKES SYSTEM/CTL UNIT/CTL &/ WARN	5GG	333/T56
133VU	HYDRAULIC/BRAKES SYSTEM/CTL UNIT/LAND/ RECOVERY/SUPPLY	98GG	333/T55
133VU	HYDRAULIC/BRAKES SYSTEM/CTL UNIT/NORM	4GG	331/V55
133VU	HYDRAULIC/BRAKES SYSTEM/CTL UNIT/SUPPLY	42GG	331/V56
133VU	HYDRAULIC/BRAKES SYSTEM/CTL UNIT/NORM	2GG	332/U55
133VU	HYDRAULIC/BRAKES SYSTEM/CTL UNIT/SUPPLY	41GG	332/U56
133VU	HYDRAULIC/AUTO BRK	95GG	335/R57

B. Removal
(Ref. Fig. 401)
(1)Unscrew knurled nuts (2) and free quick-release fasteners from unit (1).
(2)Gradually remove unit (1) from mounting (3).

C. Installation
(1)Install unit (1) on mounting (3) by engaging it with dowel pins (4) and pushing it home until it engages with connectors (5).
(2)Engage quick-release fasteners and tighten knurled nuts (2).
(3)Remove safety clips and tags and close BRAKES circuit breakers GG.

D. Tests
R (1)Perform a BITE test of BSCU (Ref. 32-42-00, P. Block 501).

E. Close-Up
(1)De-energize the aircraft electrical network (Ref. 24-41-00, P. Block 301).



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DM5

Brake System Control Unit
Figure 401

NLG IN-FLIGHT BRAKE BAND REMOVAL/INSTALLATION

WARNING : CHECK THAT THE LANDING GEAR GROUND SAFETIES INCLUDING WHEEL CHOCKS ARE IN POSITION.
BEFORE APPLYING OR RELIEVING HYDRAULIC SYSTEM PRESSURE, MAKE CERTAIN THAT THE TRAVEL RANGES OF THE CONTROL SURFACES ARE CLEAR.
BEFORE PRESSURIZING HYDRAULIC SYSTEMS, CHECK THAT ALL CONTROLS ARE SET TO CORRESPOND WITH THE ACTUAL POSITION OF THE SERVICES THEY OPERATE.
BEFORE POWER IS SUPPLIED TO THE AIRCRAFT MAKE CERTAIN THAT ELECTRICAL CIRCUITS UPON WHICH WORK IS IN PROGRESS ARE ISOLATED.
BEFORE PRESSURIZING HYDRAULIC SYSTEMS MAKE CERTAIN THAT HYDRAULIC SYSTEM UNDER MAINTENANCE HAS BEEN ISOLATED.

1. Equipment and Materials

ITEM	DESIGNATION
A. Material No. 04-004	Common Greases (Ref. 20-31-00)
R B. Material No. 04-022	Common Greases (Ref. 20-31-00)
C. Material No. 11-002	Cleaning Agents (Ref. 20-31-00)
D.	Warning Notices
E.	Safety Barriers
F.	Access platform 2 m - 2.6 m (6 ft. 7 in. - 8 ft. 7 in.)
Referenced Procedures	
- 29-10-00, P. Block 301	Main Hydraulic Power (Pressurization/ Depressurization)
- 29-14-00, P. Block 301	Hydraulic Reservoir Pressurizing System
- 32-12-11, P. Block 301	Main Gear Main Door - (Ground Door(s) Opening)
- 32-22-11, P. Block 301	Nose Gear Main Door - (Ground Door(s) Opening)

2. Procedure

A. Job Set-Up
(1)On panel 4VU
- Make certain that landing gear control lever is in **DOWN** position and prohibit its operation by displaying a warning notice.

(2)Between First Officer's and Third Occupant's seats
- make certain that landing gear Free Fall extension control handle is in Normal position.

(3)Position access platform
(4)Position safety barriers prohibiting access to gear door travel ranges.
WARNING : MAKE CERTAIN THAT DOOR TRAVEL RANGES ARE CLEAR
(5)Open left main gear door and nose gear door (Ref. 32-12-11, P. Block 301 and 32-22-11, P. Block 301)
(6)Depressurize Green hydraulic system (Ref. 29-10-00, P. Block 301) and prohibit its pressurization by displaying a warning notice.
- on Green system ground connectors
- on panel 427VU, to prohibit operation of Green electric pumps (ELEC PUMPS pushbutton switch).

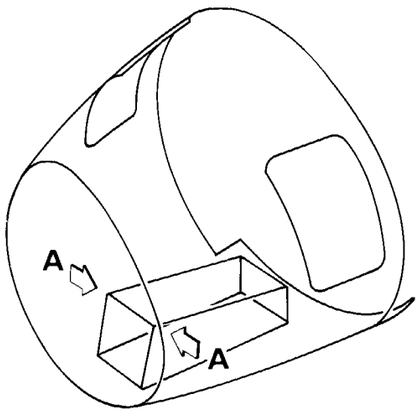
(7)Depressurize Green hydraulic reservoir (Ref. 29-14-00, P. Block 301) and prohibit its pressurization by displaying a warning notice.
- on panel 429VU to prohibit APU starting.
- on reservoir pressurization connectors.

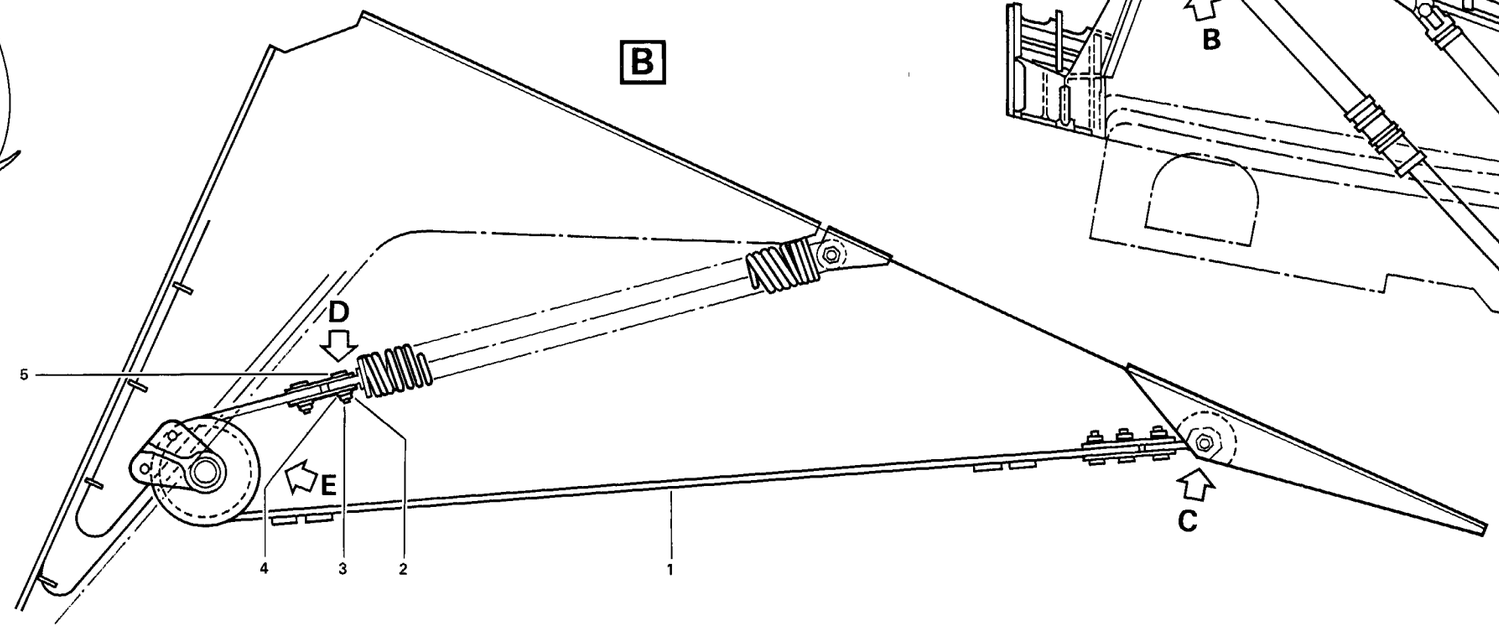
B. Removal
(Ref. Fig. 401)
(1)Remove brake band assy (1).
(a)Remove cotter pin (3), nut (2), washer (4) and bolt (5).
(b)Disengage band (1).
(c)Remove cotter pin (11), nut (10), washer (9) and bolt (6). Retain washers (7).
(d)Disengage band assy (1) from fork fitting.
(e)Retain spacer (8).
(f)Remove brake band assy (1).
(2)Remove roller (13), if necessary.
(a)Remove self-locking nuts (17) and bolts (15).
(b)Hold roller (13), remove fitting (14).
(c)Remove roller (13) from fitting (12).

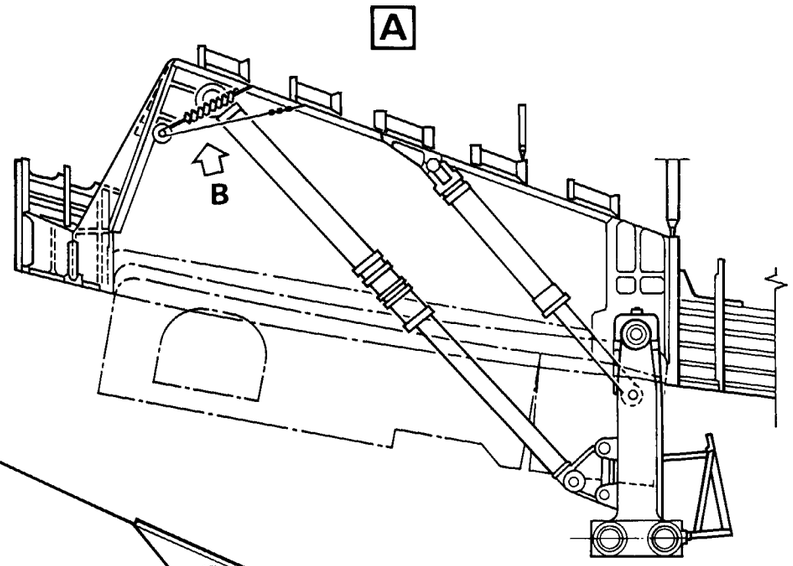
C. Preparation of Replacement Component.
R NOTE : Do not mix Material No. 04-004 with Material No. 04-022. You can
R use Material No. 04-022 as an alternative to Material No. 04-004.
R Clean and degrease the parts before you use Material No. 04-022.
(1)Depreserve replacement brake band assy and clean using Material No. 11-002 then dry off with dry air.
(2)Clean and lubricate bolts to be re-installed and spacer (8) with grease
R Material No. 04-004 or Material No. 04-022.
(3)Clean roller (13) and fittings (12) and (14) with Material No. 11-002 then dry off with dry air.

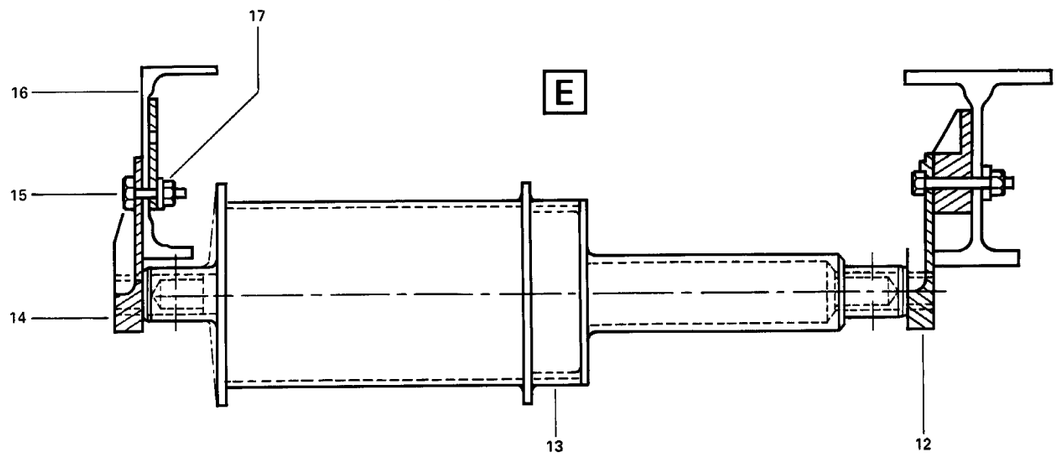
D. Installation
(1)Install roller (13), if removed.
(a)Install roller (13) on fitting (12).
(b)Install fitting (14) on the other end of the roller and position fitting (16).
(c)Install bolts (15) and install and tighten self-locking nuts (17).
(2)Install spacer (8) in brake band assy fitting.
NOTE : Observe band assy (1) installation direction, brake pads must be directed downwards.
(3)Install brake band assy (1) and washers (7) in lower fork fitting then install bolt (6). Install washer (9), tighten nut (10) and safety with cotter pin (11).
(4)Pass band assy (1) around roller.
(5)Install band assy (1) then install bolt (5).
Install washer (4), tighten nut (2) and safety with cotter pin (3).

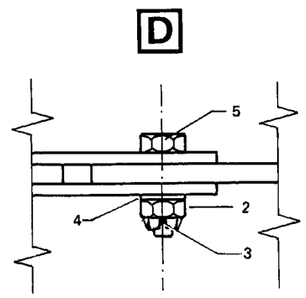
E. Close-Up
(1)Make certain that working area is clean and clear of tools and miscellaneous items of equipment.
(2)Pressurize Green hydraulic reservoir (Ref. 29-14-00, P. Block 301)

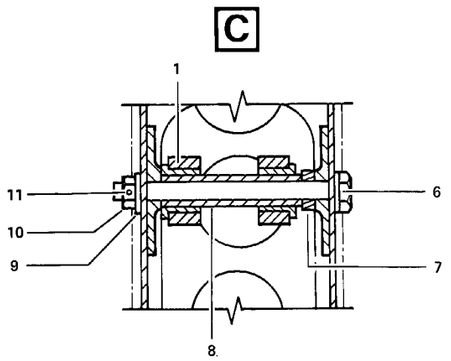












BM5 32 42 83 4 AAMO – 22

NLG Brake Band
Figure 401

WARNING : MAKE CERTAIN THAT DOOOR TRAVEL RANGES ARE CLEAR.

(3)Close landing gear doors (Ref. 32-12-11, P. Block 301 er 32-22-11, P. Block 301)
(4)Remove warning notices.
(5)Close access doors, remove access platforms and safety barriers.
(6)Remove all ground handling and maintenance equipment, standard and special tools, together with ground power and replenishing equipment, all access equipment and miscellaneous items.

R Ref. MMEL Section 1-32, Item 4 (Nose landing gear wheel braking pads)

CAUTION : THIS PROCEDURE IS TO BE USED ACCORDING TO THE REQUIREMENTS OF THE MMEL.

WARNING : CHECK THAT THE LANDING GEAR GROUND SAFETIES INCLUDING WHEEL CHOCKS ARE IN POSITION.
BEFORE APPLYING OR RELIEVING HYDRAULIC SYSTEM PRESSURE, MAKE CERTAIN THAT THE TRAVEL RANGES OF THE CONTROL SURFACES ARE CLEAR.
BEFORE PRESSURIZING HYDRAULIC SYSTEMS, CHECK THAT ALL CONTROLS ARE SET TO CORRESPOND WITH THE ACTUAL POSITION OF THE SERVICES THEY OPERATE.
BEFORE POWER IS SUPPLIED TO THE AIRCRAFT MAKE CERTAIN THAT ELECTRICAL CIRCUITS UPON WHICH WORK IS IN PROGRESS ARE ISOLATED.
BEFORE PRESSURIZING HYDRAULIC SYSTEMS MAKE CERTAIN THAT HYDRAULIC SYSTEM UNDER MAINTENANCE HAS BEEN ISOLATED.

1. Nose Wheel Brake Band/Spring Assy Deactivation

A. Equipment and Materials

ITEM	DESIGNATION
(1)	Warning Notices
(2)	Safety Barriers
(3)	Access platform 2 m - 2.6 m (6 ft. 7 in. - 8 ft. 7 in.)
Referenced Procedures	
- 29-10-00, P. Block 301	Main Hydraulic Power (Pressurization/ Depressurization)
- 29-14-00, P. Block 301	Hydraulic Reservoir Pressurizing System
- 32-12-11, P. Block 301	Main Gear Main Door - (Ground Door(s) Opening)
- 32-22-11, P. Block 301	Nose Gear Main Door - (Ground Door(s) Opening)

B. Procedure

(1) Job set-up

(a) On panel 4VU
- Make certain that landing gear control lever is in DOWN position and prohibit its operation by displaying a warning notice.

(b) Between First Officer's and Third Occupant's seats
- make certain that landing gear Free Fall extension control handle is in Normal position.

(c) Position access platform

(d) Position safety barriers prohibiting access to gear door travel ranges.
WARNING : MAKE CERTAIN THAT DOOR TRAVEL RANGES ARE CLEAR.

(e) Open left main gear door and nose gear door (Ref. 32-12-11, P. Block 301 and 32-22-11, P. Block 301)

(f) Depressurize Green hydraulic system (Ref. 29-10-00, P. Block 301) and prohibit its pressurization by displaying a warning notice :
- on Green system ground connectors
- on panel 427VU, to prohibit operation of Green electric pumps

(ELEC PUMPS pushbutton switch).

(g)Depressurize Green hydraulic reservoir (Ref. 29-14-00, P. Block 301) and prohibit its pressurization by displaying a warning notice :
- on panel 429VU to prohibit APU starting.
- on reservoir pressurization connectors.

(2)Deactivation

(Ref. Fig. 901)

(a)Remove brake band spring assy (1) at lower attachment.
1 Remove cotter pin (7), nut (6) and washer (5). Remove bolt (2) and retain washer (3).
2 Disengage brake band/spring assy (1) from fork fitting.
3 Retain spacer (4).
4 Install spacer (4), washer (3), bolt (2), washer (5), nut (6) and cotter pin (7) on fork fitting.

(b)Remove brake band spring assy (1) at upper attachment
1 Remove cotter pin (11), nut (10), washer (9) and bolt (8).
2 Remove brake band/spring assy (1).
3 Install bolt (8), washer (9), nut (10) and cotter pin (11) on fork fitting.

(3)Close-up

(a)Make certain that working area is clean and clear of tools and miscellaneous items of equipment.

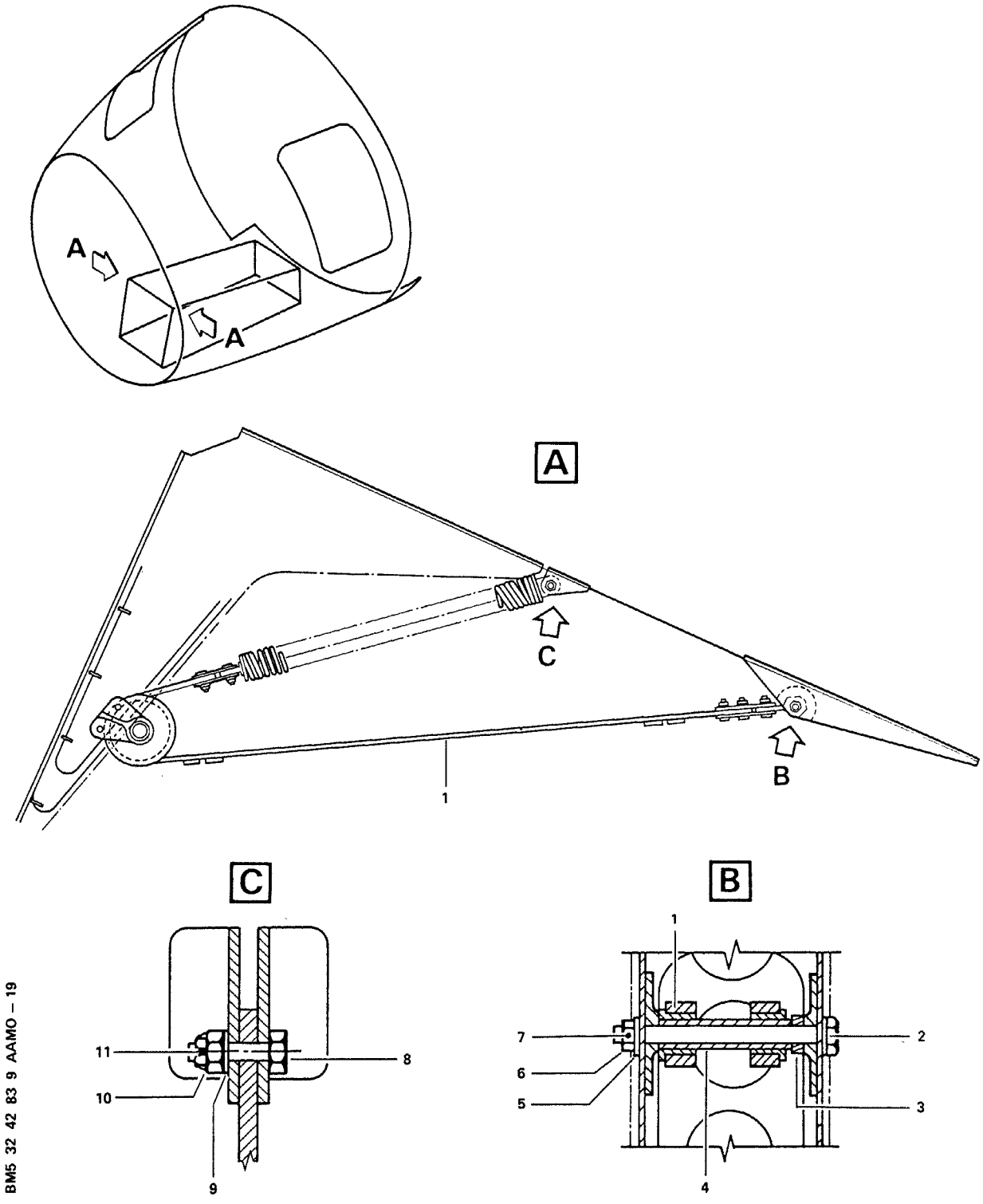
(b)Pressurize Green hydraulic reservoir (Ref. 29-14-00, P. Block 301)
WARNING : MAKE CERTAIN THAT DOOOR TRAVEL RANGES ARE CLEAR.

(c)Close landing gear doors (Ref. 32-12-11, P. Block 301 or 32-22-11, P. Block 301)

(d)Remove warning notices.

(e)Close access doors, remove access platforms and safety barriers.

(f)Remove all ground handling and maintenance equipment, standard and special tools, together with ground power and replenishing equipment, all access equipment and miscellaneous items.



NLG Brake Band
Figure 901

2. Nose Wheel Brake Band/Spring Assy Reactivation

A. Equipment and Materials

ITEM	DESIGNATION
(1)Material No. 04-004	Common Greases (Ref. 20-31-00)
R (22Material No. 04-022	Common Greases (Ref. 20-31-00)
(3)	Warning Notices
(4)	Safety Barriers
(5)	Access Platform 2 m - 2.6 m (6 ft. 7 in. - 8 ft. 7 in.)
Referenced Procedures	
- 29-10-00, P. Block 301	Main Hydraulic Power (Pressurization/ Depressurization)
- 29-14-00, P. Block 301	Hydraulic Reservoir Pressurizing System
- 32-12-11, P. Block 301	Main Gear Main Door - (Ground Door(s) Opening)
- 32-22-11, P. Block 301	Nose Gear Main Door - (Ground Door(s) Opening)

B.Procedure

(1)Job set-up

(a)On panel 4VU

- Make certain that landing gear control lever is in DOWN position and prohibit its operation by displaying a warning notice.

(b)Between First Officer's and Third Occupant's seats

- make certain that landing gear Free Fall extension control handle is in Normal position.

(c)Position access platform

(d)Position safety barriers prohibiting access to gear door travel ranges.

WARNING : MAKE CERTAIN THAT DOOR TRAVEL RANGES ARE CLEAR

(e)Open left main gear door and nose gear door (Ref. 32-12-11, P. Block 301 and 32-22-11, P. Block 301)

(f)Depressurize Green hydraulic system (Ref. 29-10-00, P. Block 301) and prohibit its pressurization by displaying a warning notice.

- on Green system ground connectors
- on panel 427VU, to prohibit operation of Green electric pumps (ELEC PUMPS pushbutton switch).

(g)Depressurize Green hydraulic reservoir (Ref. 29-14-00, P. Block 301) and prohibit its pressurization by displaying a warning notice.

- on panel 429VU to prohibit APU starting.
- on reservoir pressurization connectors.

(2)Reactivation (Ref. Fig. 901)

R NOTE : Do not mix Material No. 04-004 with Material No. 04-022. You can
R use Material No. 04-022 as an alternative to Material No. 04-004.
R Clean and degrease the parts before you use Material No. 04-022.

(a)Install brake band/spring assy at upper attachment

1 Remove cotter pin (11), nut (10), washer (9) and bolt (8) from fork fitting.

R 2 Clean and lubricate bolt (8) with grease Material No. 04-004 or
R Material No. 04-022.

NOTE : Observe direction of brake band spring assy (1) installation,

brake pads must be directed downwards.

3 Install brake band/spring assy (1) in upper fitting.

4 Install bolt (8), washer (9) and nut (10). Tighten nut (10) and safety with cotter pin (11).

5 Pass band/spring assy (1) around drum.

(b)Install brake band/spring assy at lower attachment.

1 Remove cotter pin (7), nut (6), washer (5), bolt (2), retain spacer (4) and washer (3).

2 Clean and lubricate bolt (2) and spacer (4) with grease Material
R No. 04-004 or Material No. 04-022.

3 Install spacer (4) in fitting of brake band/spring assy.

4 Install band/spring assy (1) equipped with spacer (4) and washer (3) in lower fitting.

5 Install bolt (2), washer (5). Tighten nut (6) and safety with cotter pin (7).

(3)Close-up

(a)Make certain that working area is clean and clear of tools and miscellaneous items of equipment.

(b)Pressurize Green hydraulic reservoir (Ref. 29-14-00, P. Block 301)

WARNING : MAKE CERTAIN THAT DOOOR TRAVEL RANGES ARE CLEAR.

(c)Close landing gear doors (Ref. 32-12-11, P. Block 301 or 32-22-11, P. Block 301)

(d)Remove warning notices.

(e)Close access doors, remove access platforms and safety barriers.

(f)Remove all ground handling and maintenance equipment, standard and special tools, together with ground power and replenishing equipment, all access equipment and miscellaneous items.

ALTERNATE BRAKING WITH ANTI SKID (ALTN/ON) - DESCRIPTION AND OPERATION

1. General

(Ref. Fig. 001)

Alternate braking with anti skid associates Yellow high pressure with anti skid regulation. This mode is obtained via the **BRK/A/SKID** switch by selecting the **ALTN/ON** position or automatically with the switch in **NORM/ON** position if Green pressure is not available or drops during braking. Automatic switching between the Green and Yellow systems is achieved by a reversible hydraulic selector.

Control is achieved solely via the pedals. The orders are transmitted by an auxiliary low pressure hydraulic system. The pressure delivered to the left and right brakes is indicated on a brake Yellow pressure triple indicator located on the center instrument panel. The anti skid system and associated indicating are operative.

This braking mode uses the second set of pistons on the brake units.

2. Component Location

(Ref. Fig. 002)
(Ref. Fig. 003)
(Ref. Fig. 004, 005)
(Ref. Fig. 006, 007)

	FIN	FUNCTIONAL DESIGNATION	PANEL	ZONE	ACCESS DOOR	ATA REF.
	1300	SELECTOR-BRK AUTOMATIC		148		32-42-13
	3294	SHUTTLE VALVE-BRK YELLOW PRESS DUAL		147		32-45-16
	3301	VALVE-ALTM BRK DISTR DUAL		147		32-43-14
	3312	MANIFOLD-SERVOVALVE, L		731		
	3313	MANIFOLD-SERVOLVAVE, R		741		
	3324	SAFETY VALVE-ALTM BRK, WHEEL 1/2		731		
	3325	SAFETY VALVE-ALTM BRK, WHEEL 3/4		741		
	3328	SAFETY VALVE-ALTM BRK, WHEEL 5/6		731		
	3329	SAFETY VALVE-ALTM BRK, WHEEL 7/8		741		
	3346	ACCU-ALTM BRK RETURN, L		731		
	3347	ACCU-ALTM BRK RETURN, R		741		
	4300	HYD RESERVOIR-BRK CTL		122		32-43-11
	4301	MASTER CYL-BRK CTL, R		122		32-43-12
	4302	MASTER CYL-BRK CTL, L		122		32-43-12
	71GG	IND-BRK YELLOW PRESS TRIPLE	4VU	211		
R	72GG	XMTR-BRK YELLOW PRESS, R		148		32-44-18
R	73GG	XMTR-BRK YELLOW PRESS, L		148		32-44-18
	74GG	XMTR-BRK YELLOW ACCU PRESS		148		
	75GG	SERVOVALVE-ALTM BRK, WHL 1/2		731		
	76GG	SERVOLVAVE-ALTM BRK, WHL 3/4		741		
	77GG	SERVOLVAVE-ALTM BRK, WHL 5/6		731		
	78GG	SERVOLVAVE-ALTM BRK, WHL 7/8		741		
	96GG	SWITCH-BRK/A/SKIP	401VU	122		

INTENTIONALLY BLANK

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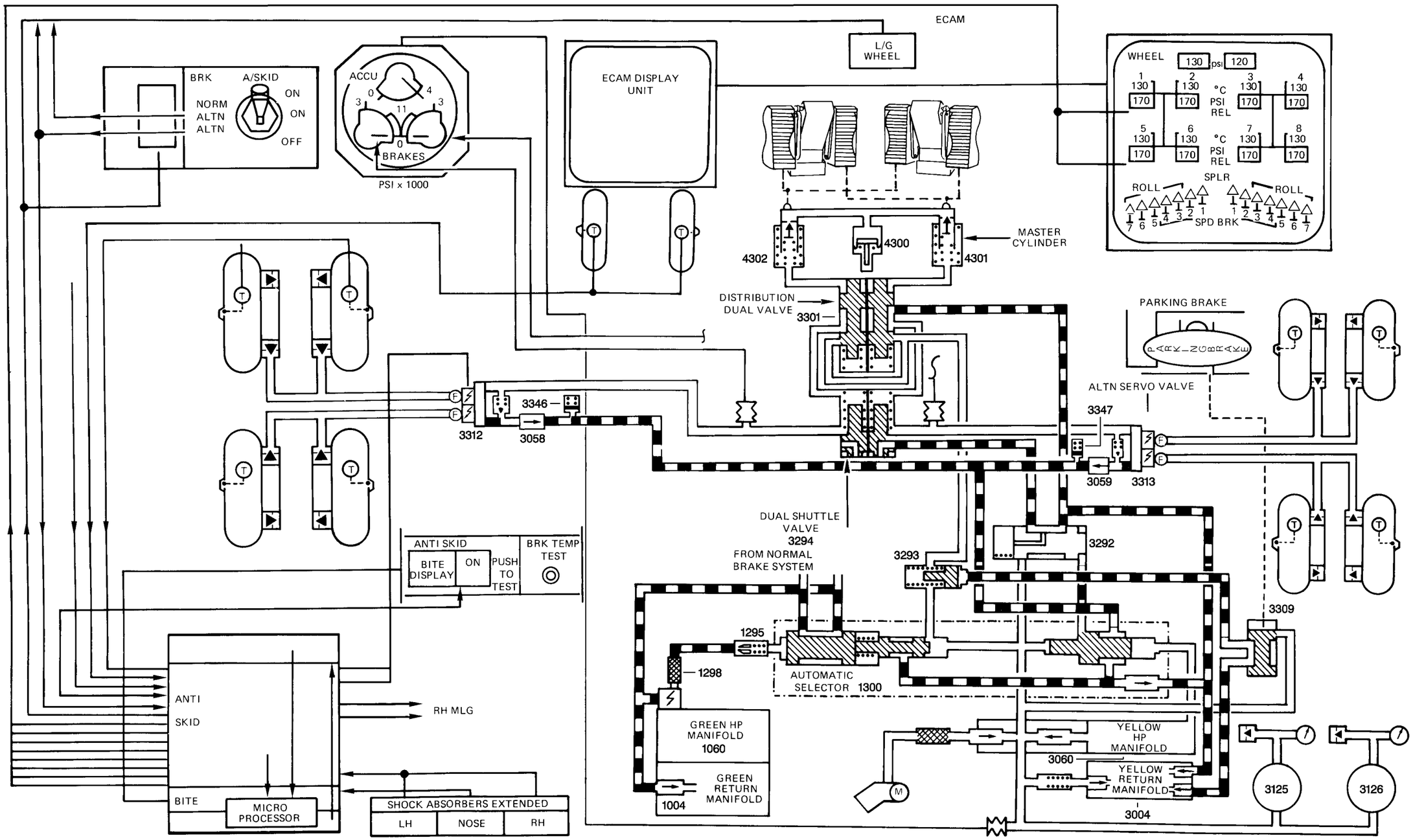

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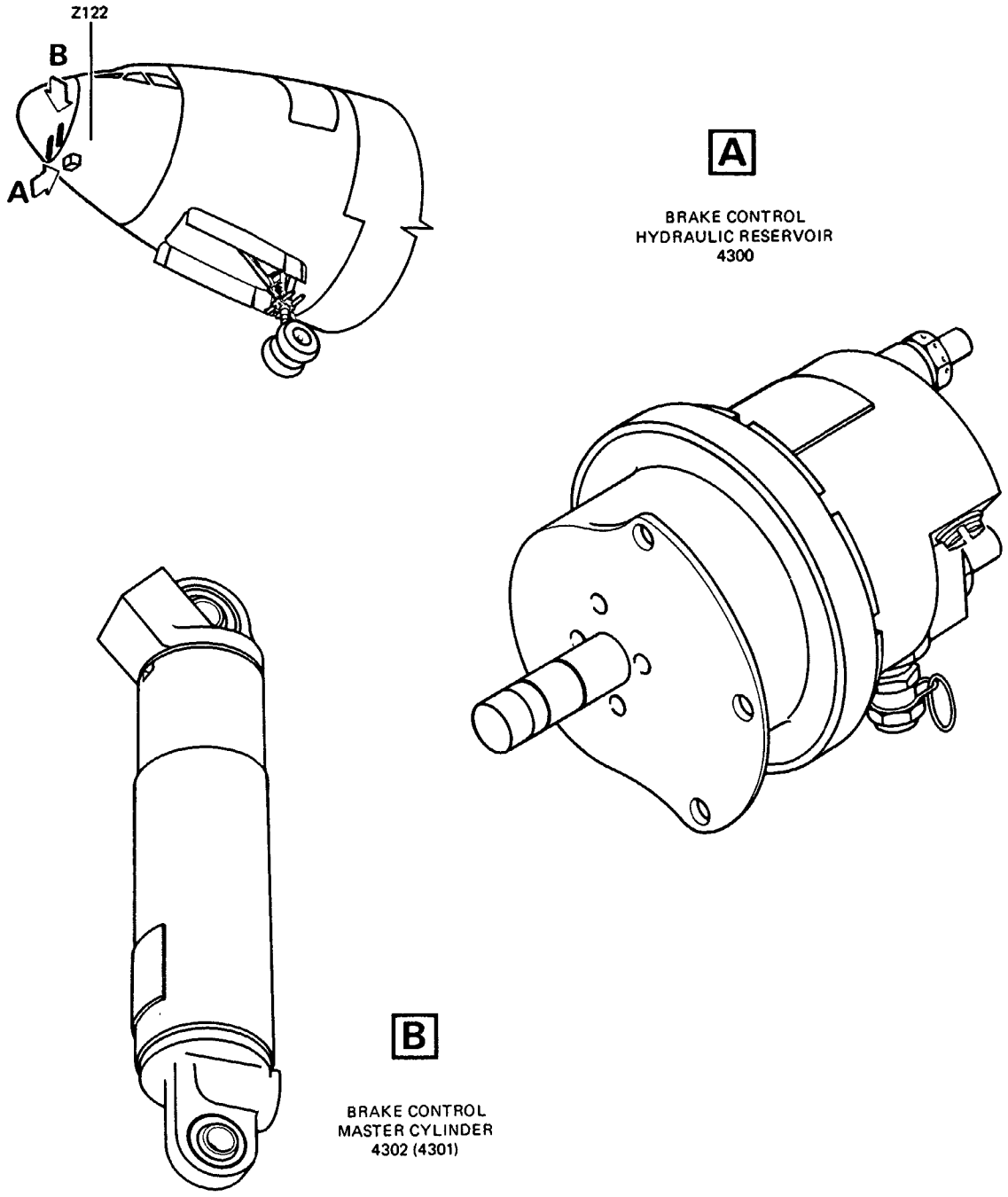
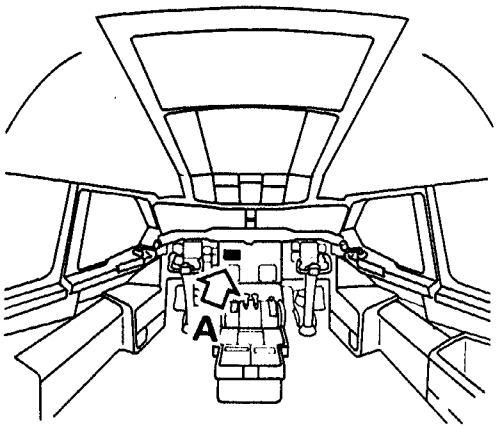
R

Alternate Braking With Anti Skid
Figure 001



BM5 32 43 00 0 BTMO – 08

Hydraulic Components - Zone 122
Figure 002



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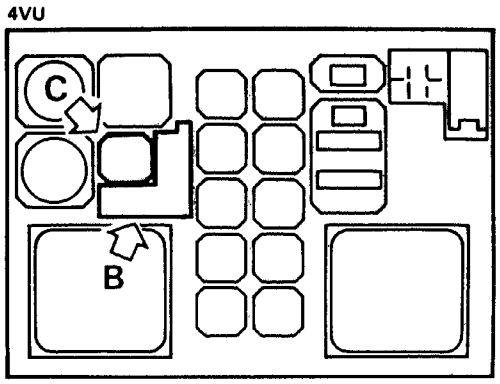
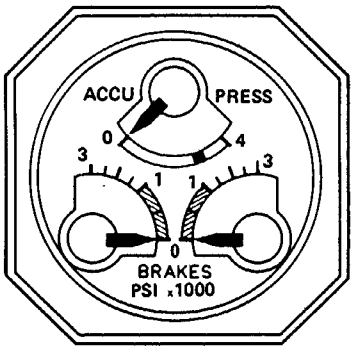


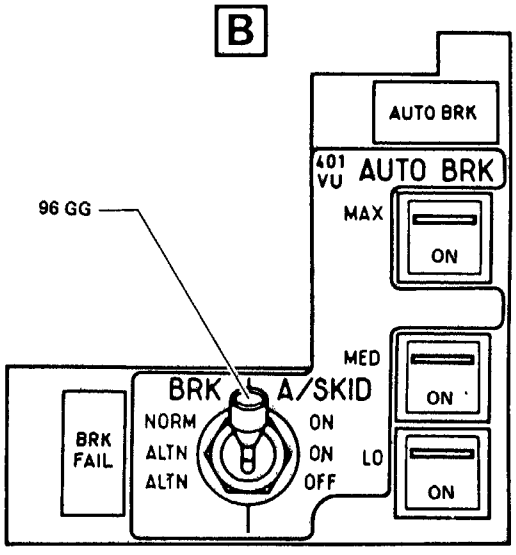
4VU

C



71GG
BRAKE YELLOW PRESSURE
TRIPLE INDICATOR

B



401 VU

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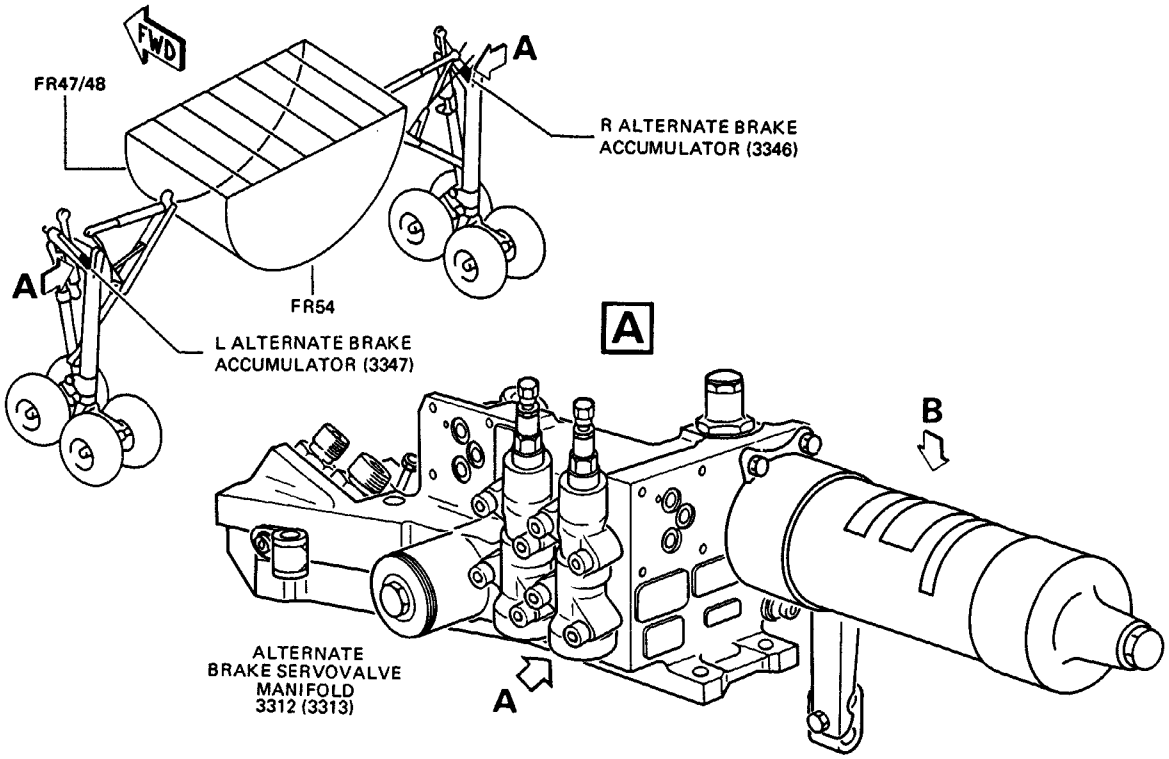
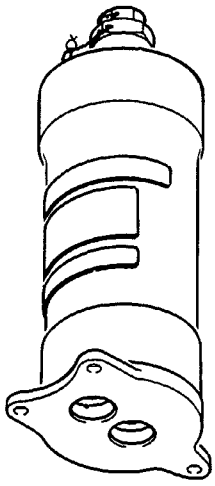
Control and Indicating Components - Flight Compartment
Figure 003



B

ALTERNATE BRAKE RETURN ACCUMULATOR
3347 (3346)



LEFT GEAR SHOWN
RIGHT GEAR SYMMETRICAL

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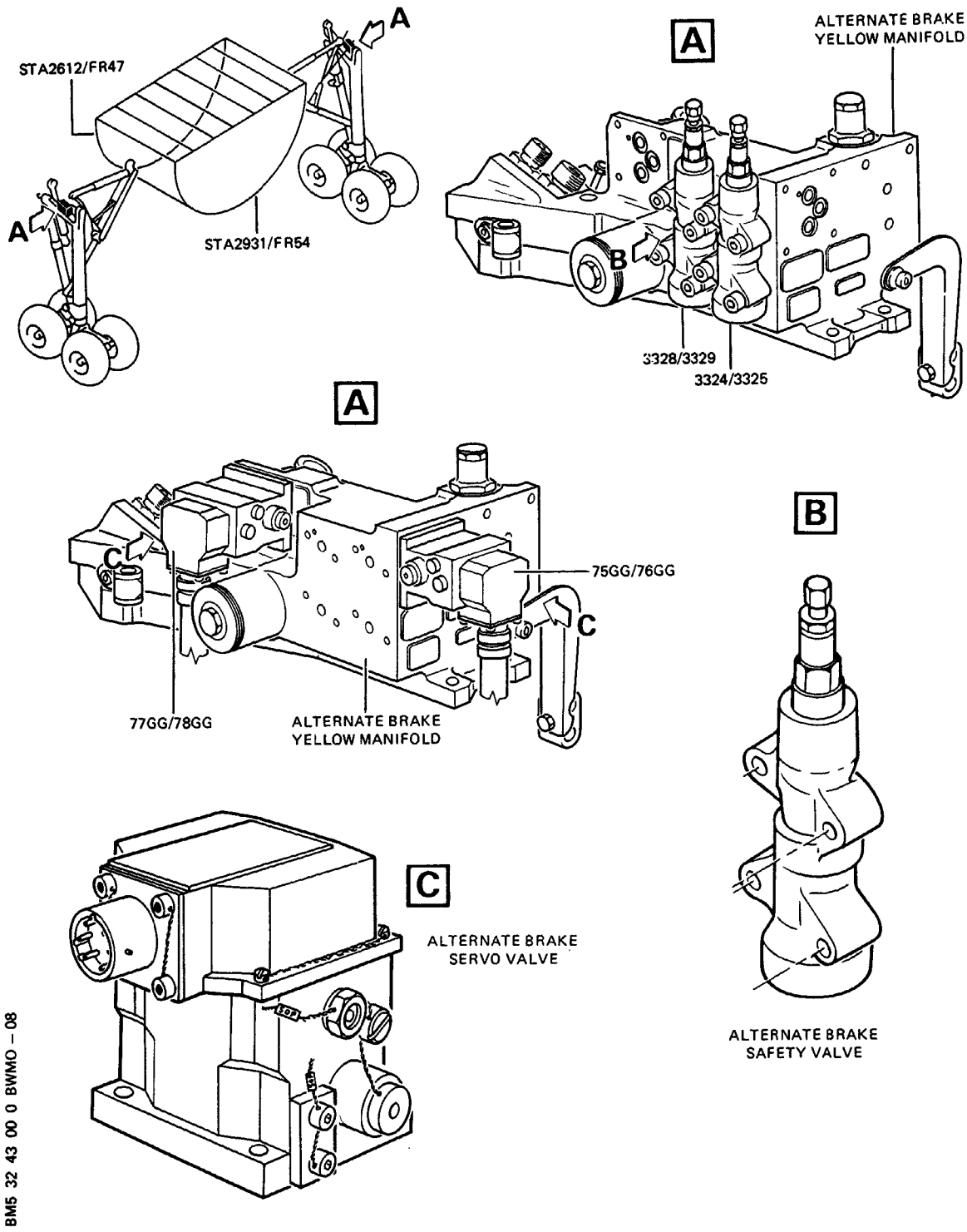
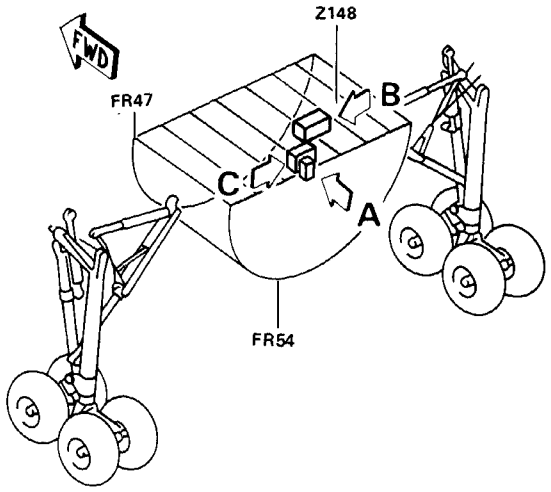
Hydraulic Components - Zone 731/741
Figure 004



Hydraulic Components - Zone 731/741
Figure 005



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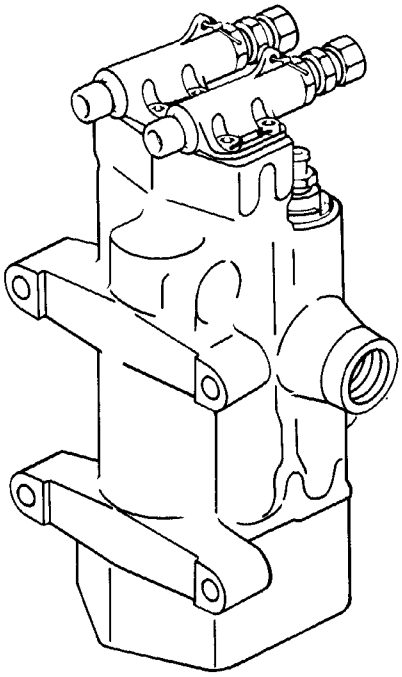
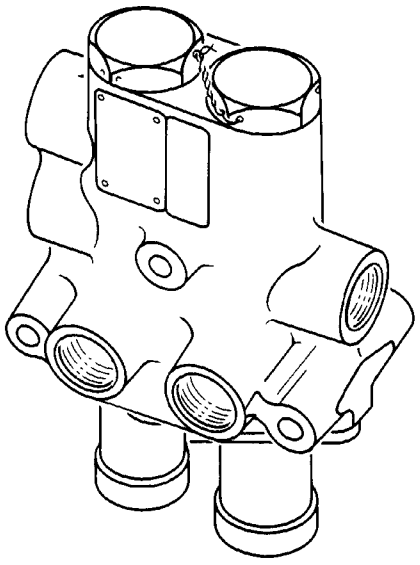


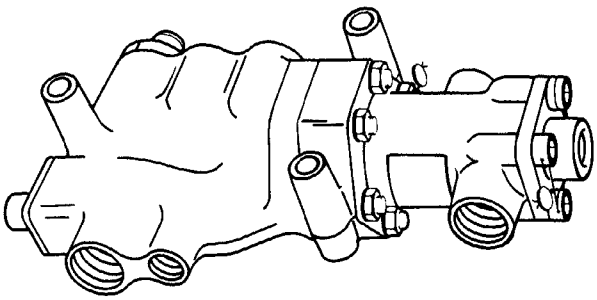
ALTERNATE BRAKE
DISTRIBUTION DUAL VALVE
3301

C



BRAKE YELLOW PRESSURE
DUAL SHUTTLE VALVE
3294

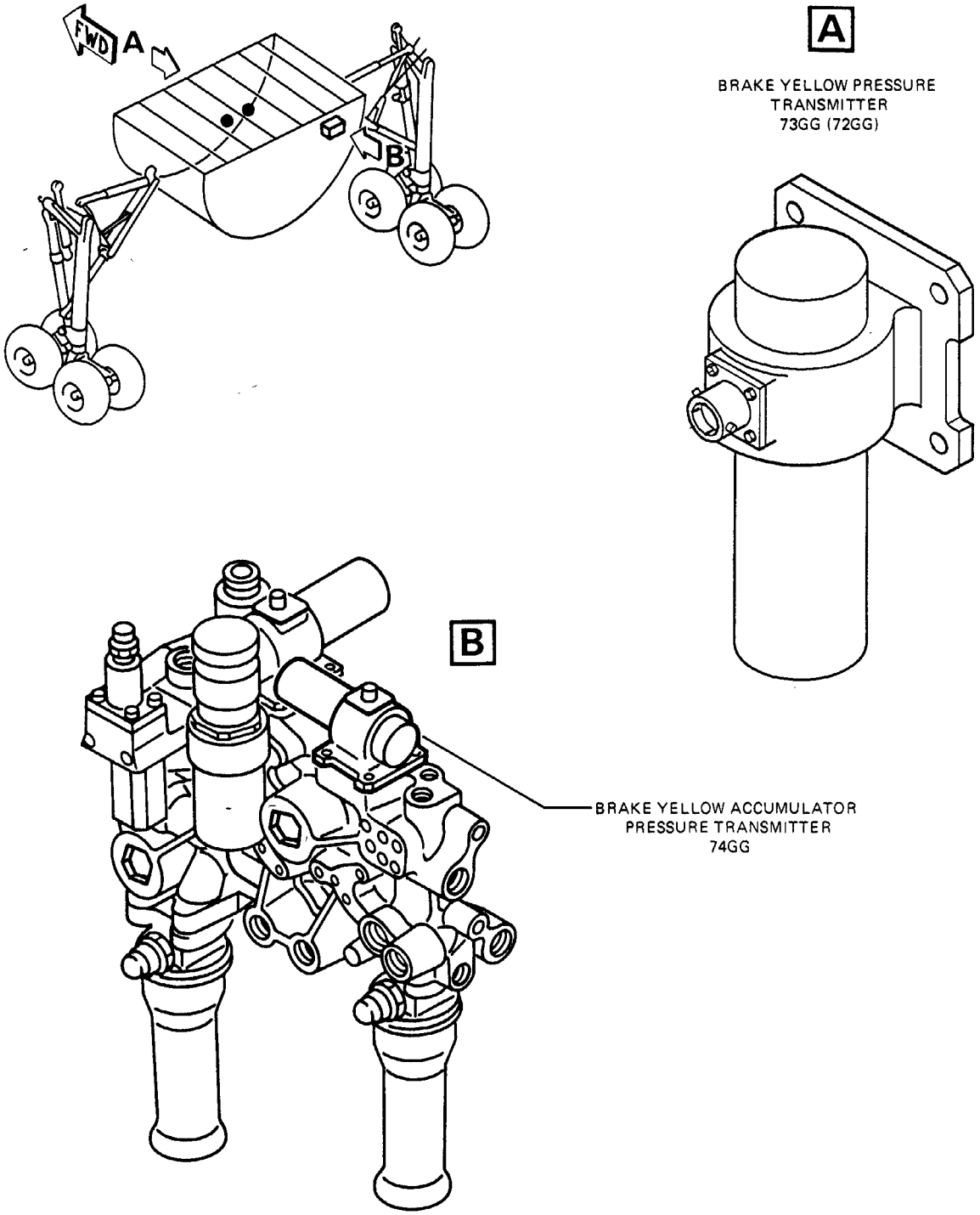
B



AUTOMATIC SELECTOR
1300

BM5 32 43 00 0 BXMO – 12

Hydraulic Components - Zone 147/148
Figure 006



Hydraulic Components - Zone 148
Figure 007

R

3. Auxiliary Low Pressure Control System

A. Component Description

(1)Brake control hydraulic reservoir (Ref. Fig. 008)

The reservoir supplies the Alternate system master cylinders with hydraulic fluid to compensate the variations in the volume of fluid and possible leakage. The reservoir has a capacity of 50 cm^3 at 20°C.
Slight pressurization (1.5 bars absolute) is achieved by a spring loaded piston.
The reservoir is equipped with a filling valve and two calibrated valves one for limiting internal pressure (1.5 bars) (21,75 psi) and the other for expelling fluid in the event of overpressure (3.5 bars) (47,86 psi).

(2)Master cylinders (Ref. Fig. 009)

There are two master cylinders (one for the left side, one for the right side).
The master cylinders serve to :
- control the Alternate brake system distribution dual valve by displacement of a volume of fluid from chamber C1
- provide artificial feel at the pedals by means of an internal spring and the load resulting from the pressure that builds up in the control circuit (Ref. Fig. 010)

When the pedals are released an internal valve opens to connect chamber C1 to upper chamber C2 which is in turn connected to the hydraulic reservoir.
Chamber C2 provides a safety reserve of fluid.

(3)Alternate brake distribution dual valve.

(Ref. Fig. 011)

R **ON A/C ALL

R Post SB 32-2113 For A/C ALL

(Ref. Fig. 012)

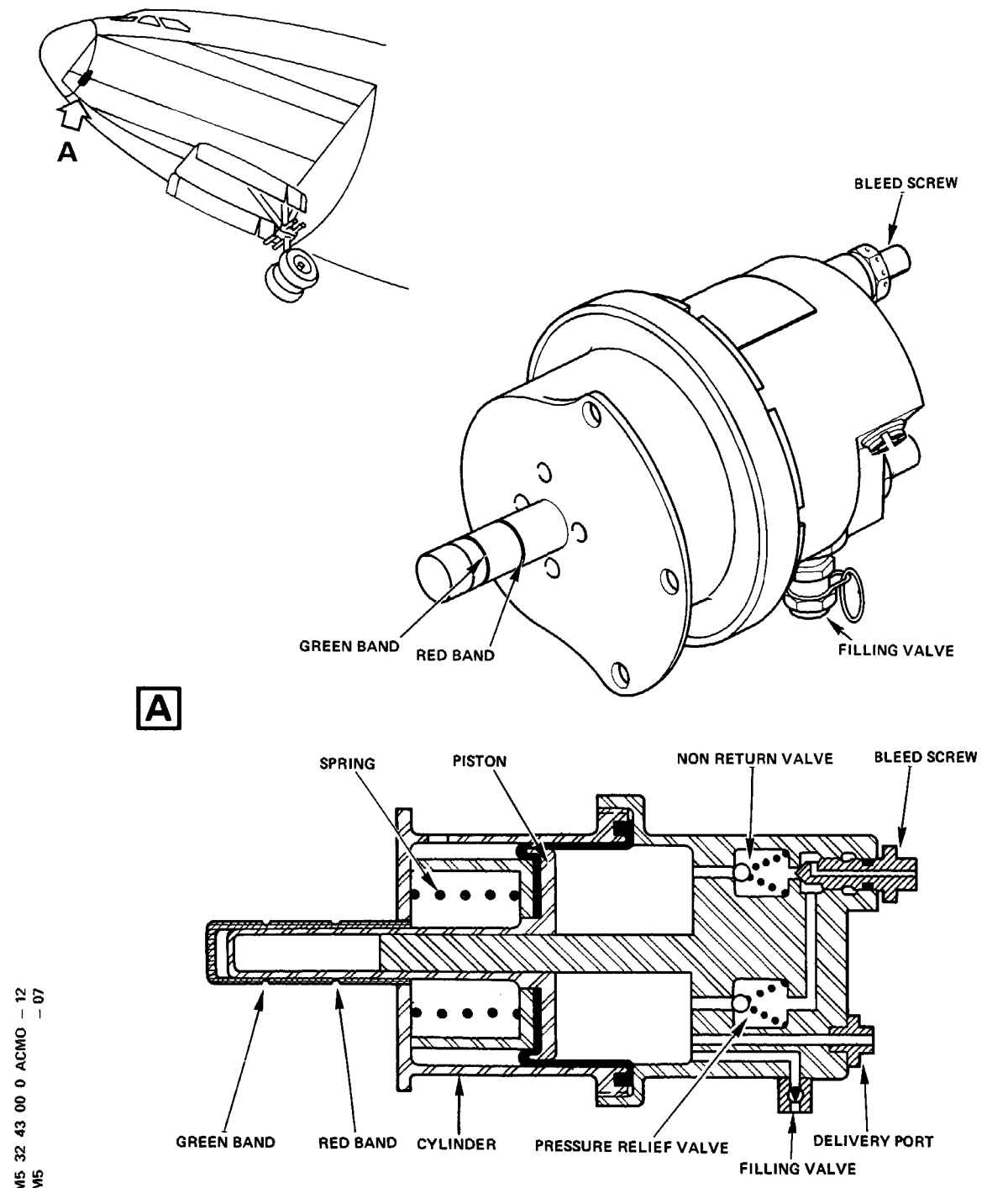
R **ON A/C ALL

The distribution dual valve includes two independent pressure reducing valves, one per main gear, each actuated by a master cylinder.
The distribution dual valve is installed on the hydraulics compartment roof.

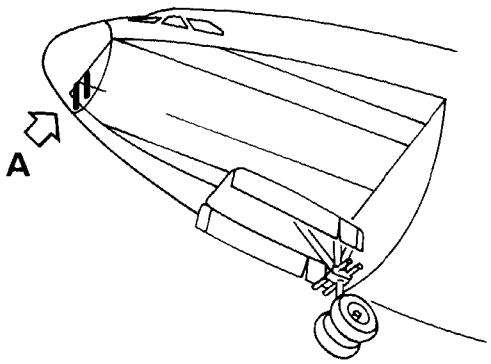
R **ON A/C ALL

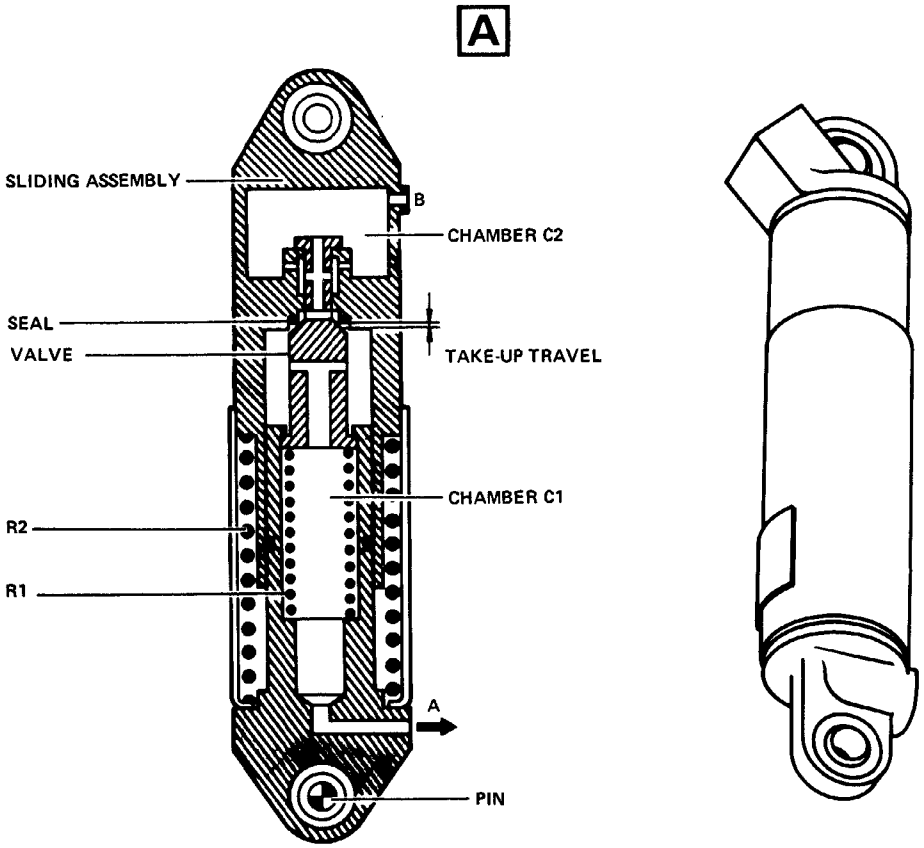
R Post SB 32-2113 For A/C ALL

The distribution dual valve includes two independent pressure reducing valves, one per main gear, each actuated by a master cylinder.
The distribution dual valve is installed on the hydraulics compartment roof. A transparent drain tube connected to the cover of the



Brake Control Hydraulic Reservoir
Figure 008





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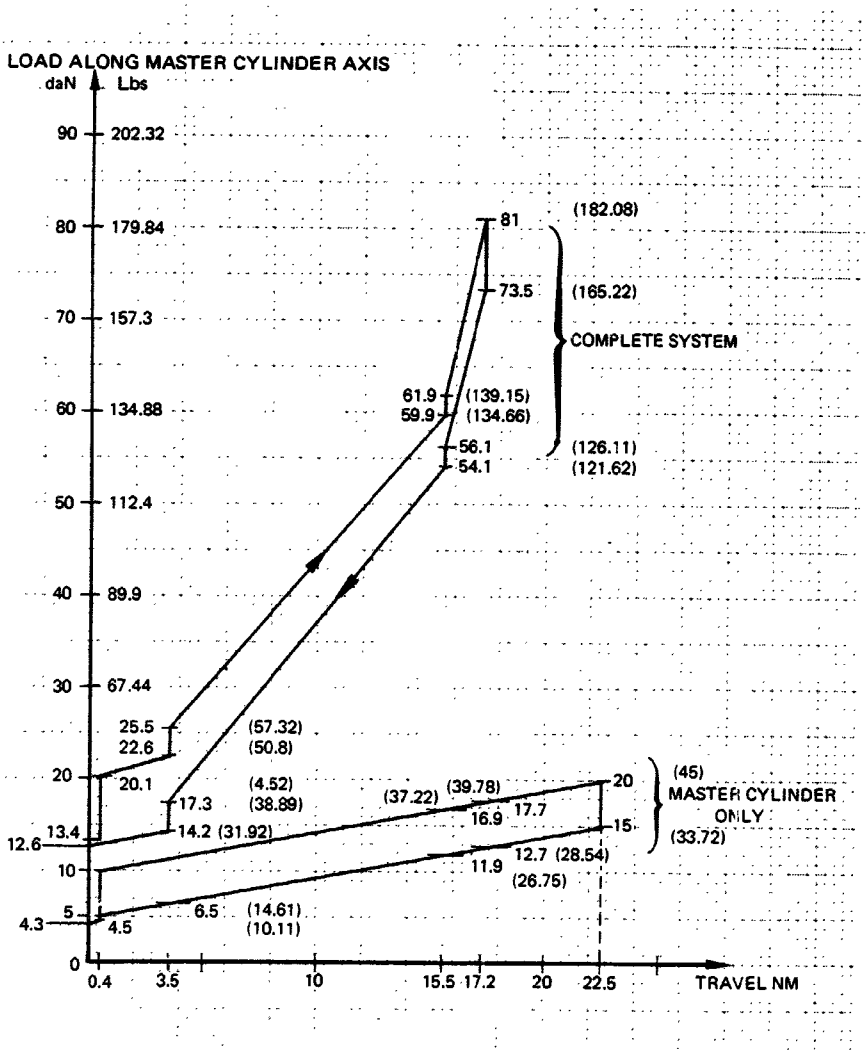
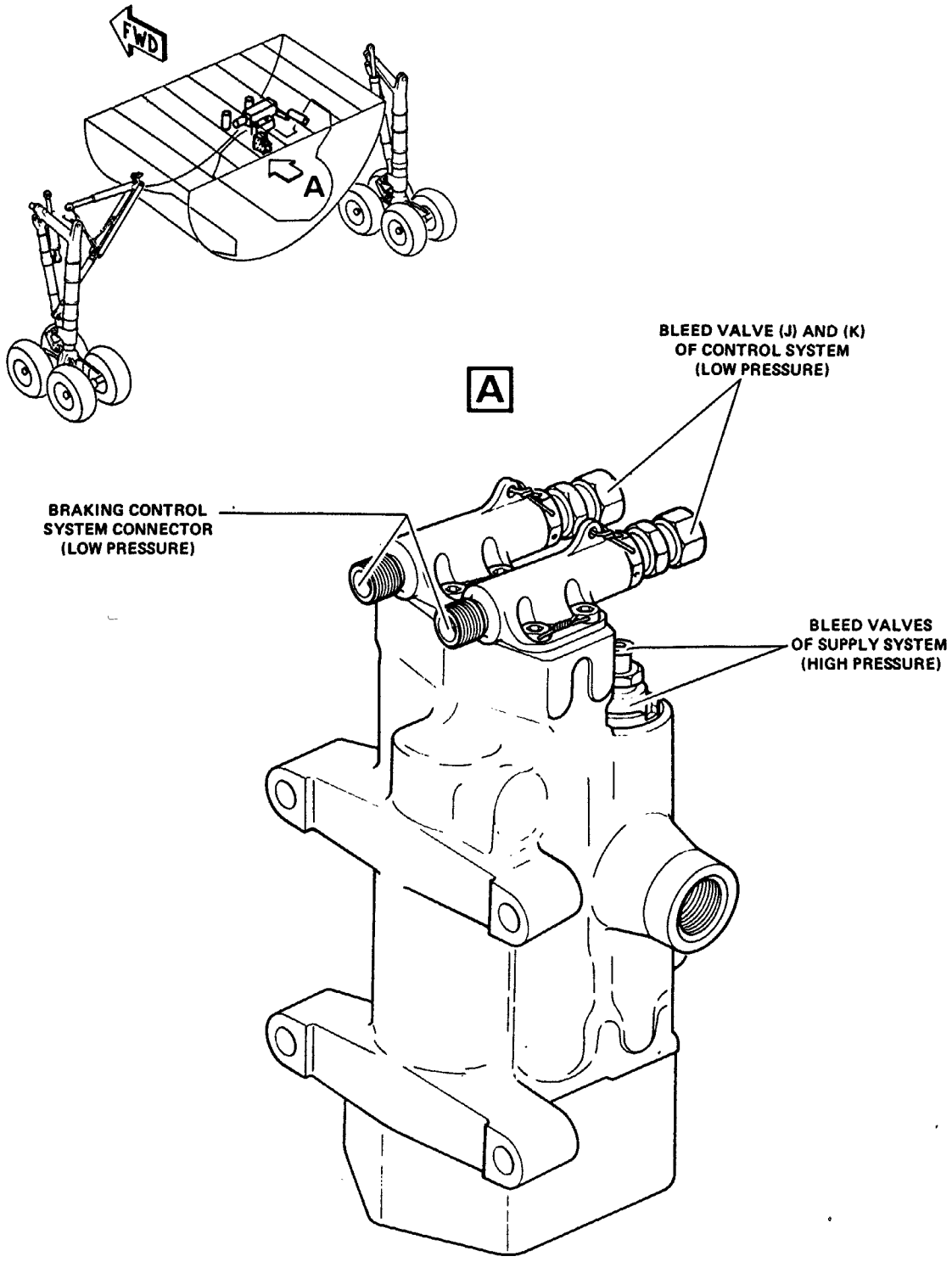
– 07
DM5

Master Cylinder
Figure 009



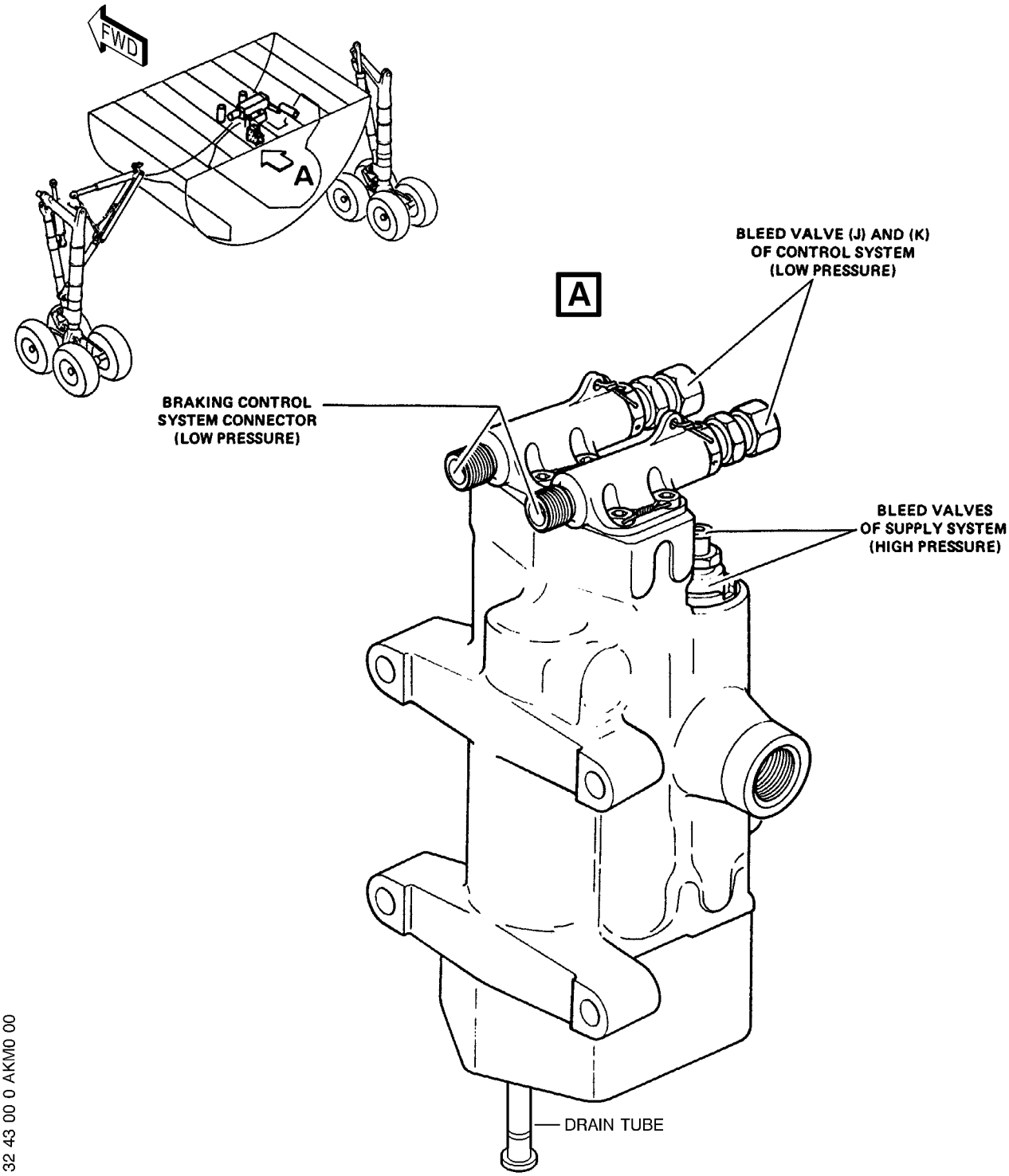
BM5 32 43 00 0 AGMO

Master Cylinder Load Versus Travel
Figure 010



BM5 32 43 00 0 AJMO – 11

Alternate Brake Distribution Dual Valve
Figure 011



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Alternate Brake Distribution Dual Valve
Figure 012

distribution dual valve, allows to check for possible presence of water.
A cap closes this tube.

R **ON A/C ALL

(Ref. Fig. 013)
Each pressure reducing valve is comprised of a control piston actuating a distribution slide valve through a spring R1 and a lever.
When the pedal is released, Yellow pressure at A is shut off and service port C is connected to reservoir return B.
When the pedal is depressed, the volume of fluid displaced by the master cylinder causes corresponding displacement of the piston which in turn actuates the lever and slide valve ; B is shut off and pressure port A is connected to service port C.
The pressure resulting from the filling of line C acts on the end of the slide valve (chamber D) and exerts a load which, through the lever, causes spring R1 to compress ; the control piston remaining in the same position.
A check valve serves to rapidly expell fluid from chamber D to service port C, to enable the slide valve to adopt the fully open position as soon as the pedals are depressed and avoid any delay in filling the brakes.
In balanced state, the pressure delivered is proportional to the compression of spring R1 and consequently to the displacement of the control piston.
Pressure builds up in the control line as a result of the compression of the control piston return springs.
The delivery pressure (reduced) versus control piston travel and versus control pressure is shown on the graphs. (Ref. Fig. 014)
Maximum pressure delivered is 170 bars (2465 psi).

B. Replenishing and Bleeding
(Ref. 12-12-32, P. Block 1).

4. Brake System Component Description

A. Automatic Selector (Alternate Mode) (Ref. Fig. 015)
The main function of the automatic selector is to select the Normal hydraulic system (Green) (Ref. 32-42-00, paragraph 2.D) or Alternate system (Yellow) for supply of the brakes.
The Alternate system is selected in the absence of Green pressure (selector valve de-energized or faulty, or selector valve energized but with loss of Green hydraulic system).
Selection is achieved by a primary stage consisting of a differential-section piston actuating a slide valve for Normal braking on the one hand and a set of valves for Alternate braking on the other hand. This design ensures sealing between the two systems.
When passing from Normal to Alternate, in the intermediate position, the piston actuated by the Yellow pressure at D (Yellow pressure plus accumulator back-up) cuts off the return line (E to H) prior to pressurizing the Alternate brake system (D to H).

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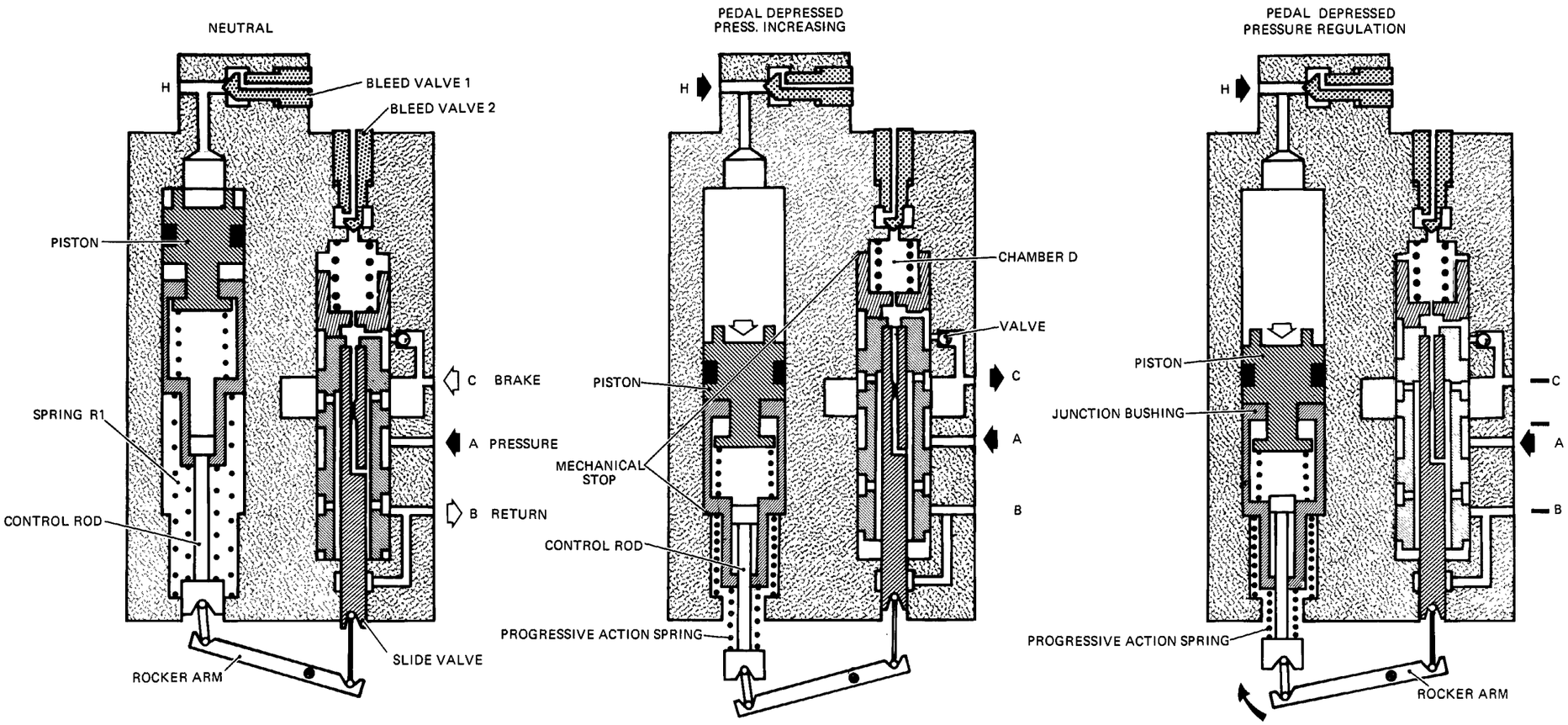

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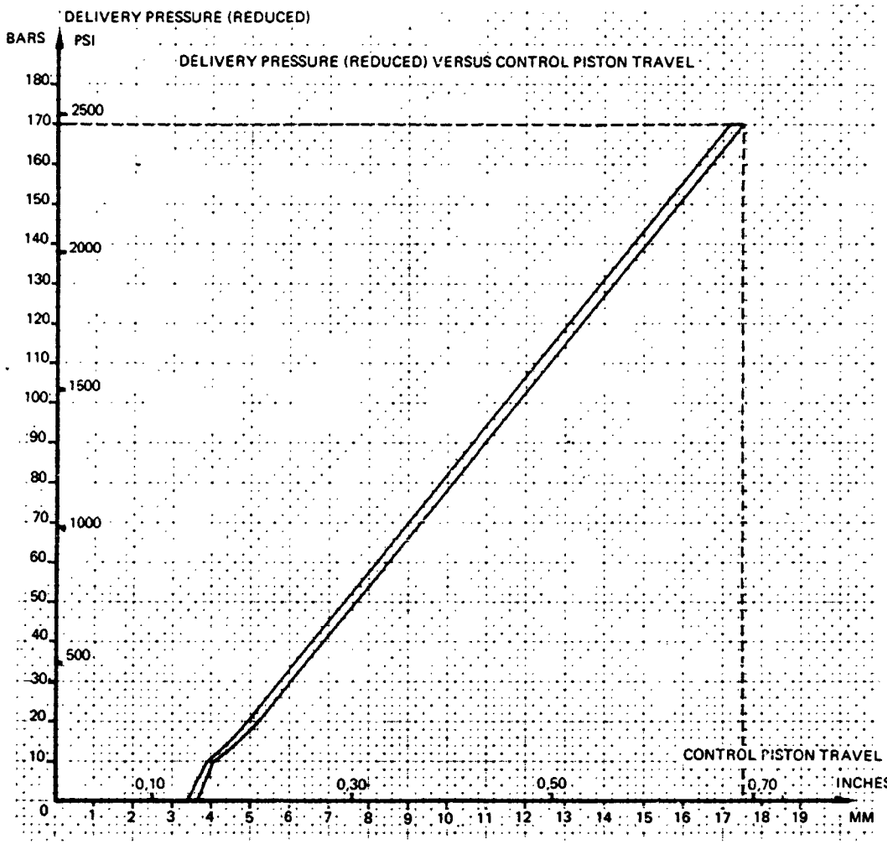
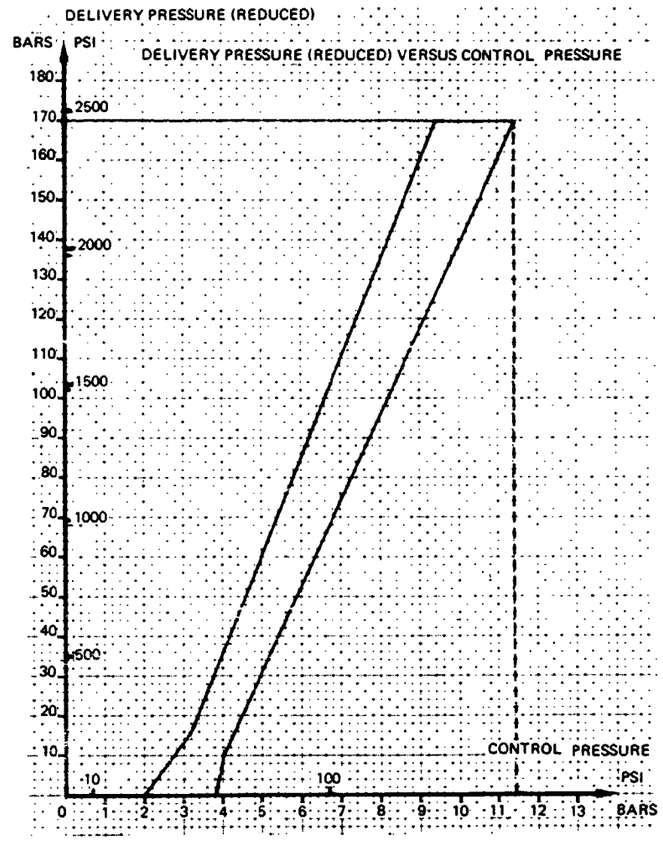
Alternate Brake Distribution Dual Valve - Schematic
Figure 013

DELIVERY PRESSURE (REDUCED) WITH SLOW DISPLACEMENT OF CONTROL PISTON : 170 ± 5 BARS

DELIVERY PRESSURE (REDUCED) WITH RAPID DISPLACEMENT OF CONTROL PISTON : 175^{+10}_{-0} BARS





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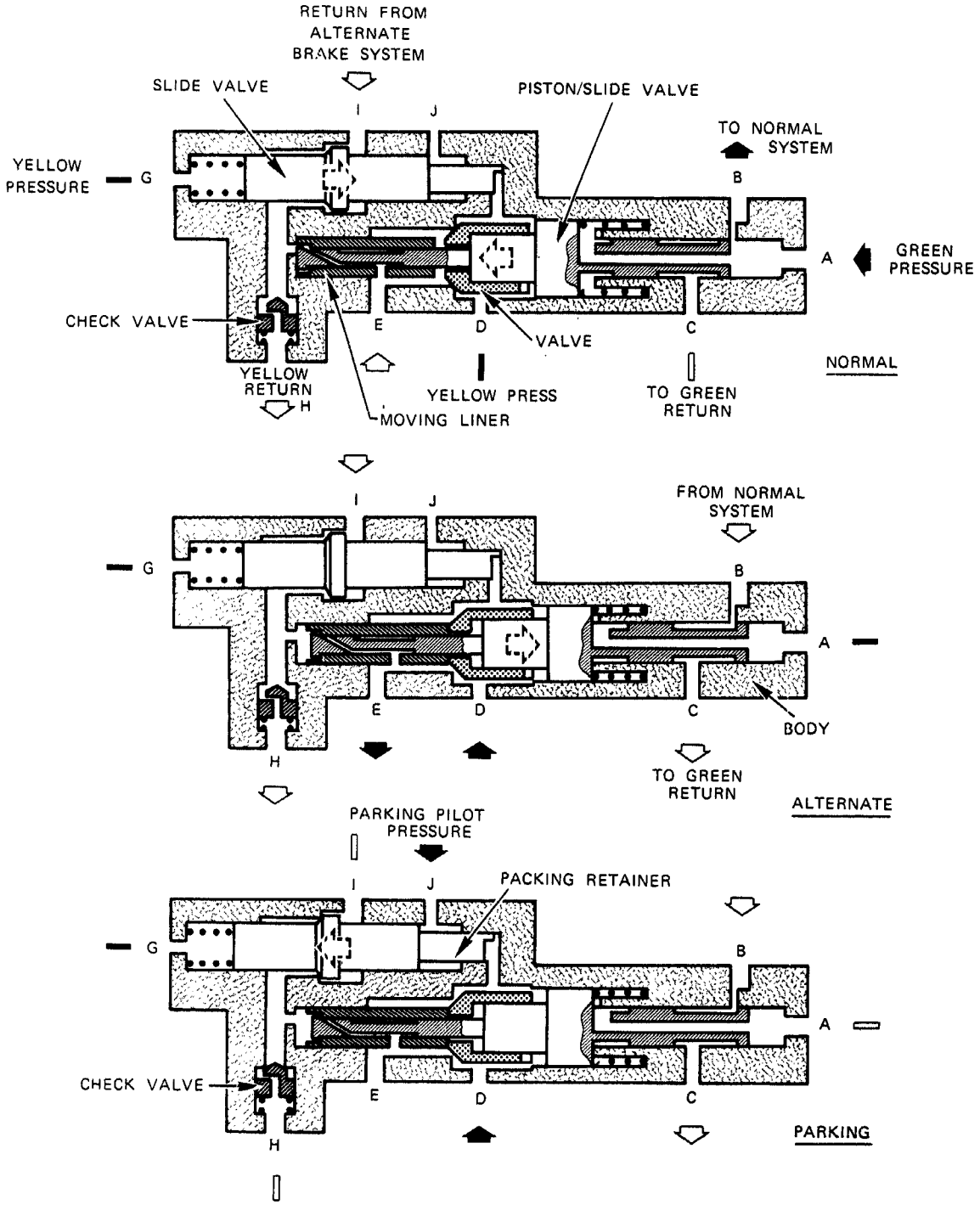
Alternate Brake Distribution Dual Valve - Characteristics
Figure 014



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Automatic Selector - Alternate Mode - Schematic
Figure 015

The selector also includes a secondary stage which serves to cut off return from the Alternate brake system servovalves in the following cases :
- Loss of Yellow system pressure. The brake Yellow power accumulators are used ; isolation of the Alternate servovalve return prevents leakage.
- Utilization of the Parking brake ; isolation of the return inhibits the Alternate servovalves and brake release during the electrical test of the servovalves is no longer possible.

The secondary stage is maintained in the return open position under the action of the spring and the Yellow system pressure at G.
The secondary stage adopts the return closed position :
- either when Yellow system pressure is no longer applied at G (Loss of Yellow system) : PG $\leq$ 115 bars (1667 psi).
- or when pressure is applied at J (Parking brake applied) : PJ $\geq$ 138 bars (1968 psi).

B. Dual Shuttle Valve (Ref. Fig. 016)
The dual shuttle valve is comprised of two valves, one per main gear, mounted in a single block adjacent to the Alternate brake system distribution dual valve. Each valve serves to select either the Alternate system (E or D) (spring biased position) or the Parking system (A) to supply the brake system of the corresponding gear (C or B).

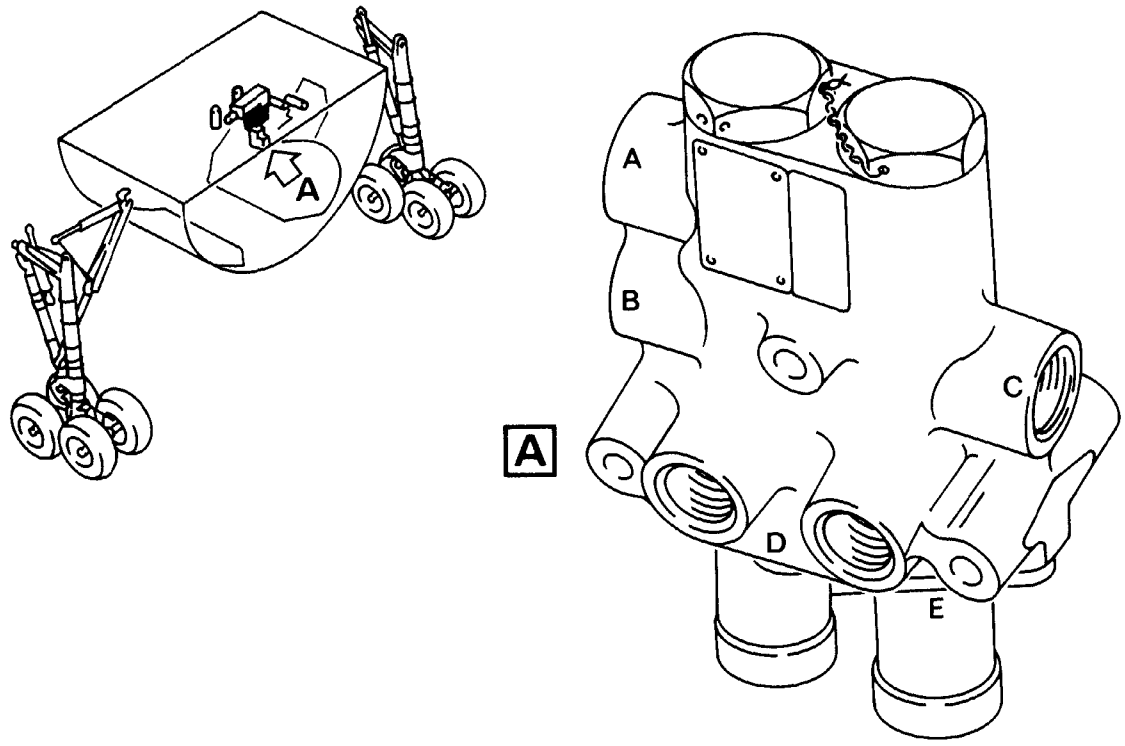
C. Alternate Brake System Pressure Transmitters and Brake Yellow Pressure Triple Indicator
(Ref. Fig. 017)
Two pressure transmitters measure the pressure at the outlet of the dual shuttle valve, i.e. the pressure delivered either by the Alternate brake system distribution dual valve or by the Parking brake pressure limiter. The pressure transmitters send the information to an indicator (brake Yellow pressure triple indicator) in the flight compartment. The indicator also receives the pressure of the brake Yellow power accumulators.

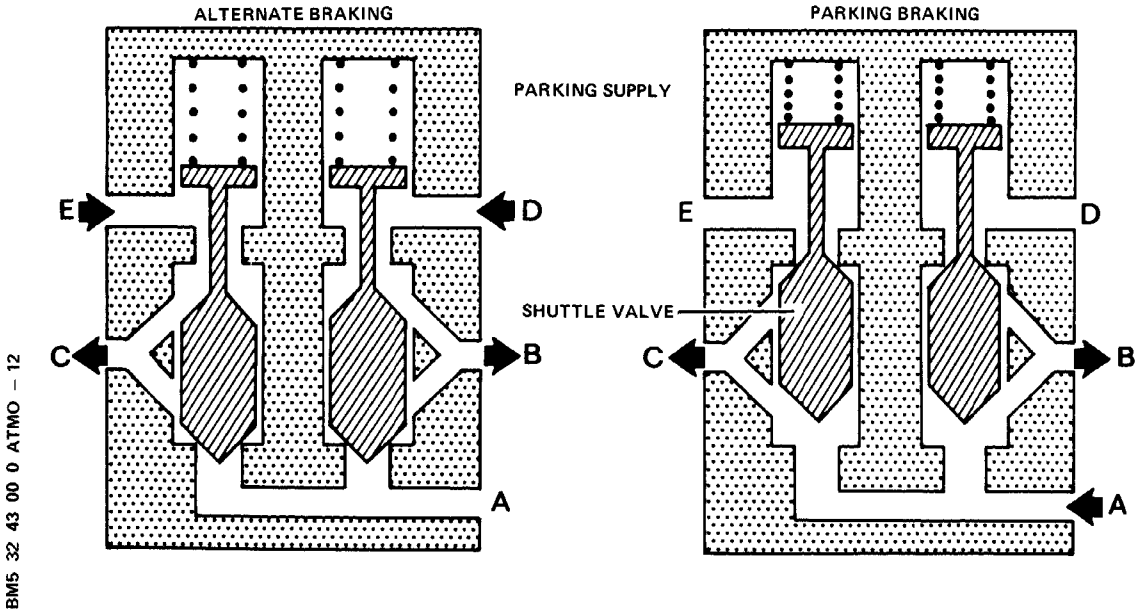
D. Alternate Brake System Servovalves, Safety Valves and Return Accumulators
The Alternate brake servovalves are identical to those of the Normal brake system (Ref. 32-42-00, paragraph 2.G.). Each servovalve supplies the two brakes on the same axle.
A manifold is installed in each main gear well, above the hinge arm and is equipped with the following :
- 2 servovalves
- 2 safety valves with integral filter
- 1 filter in the manifold pressure supply
- 1 accumulator on the return.

(1)Servovalves
The servovalves are supplied with pressure function of pedal depression. In the absence of brake regulation, the pressure applied to the brakes is equal to the pressure delivered to the servovalves.
The regulation system reduces the pressure at the brake.

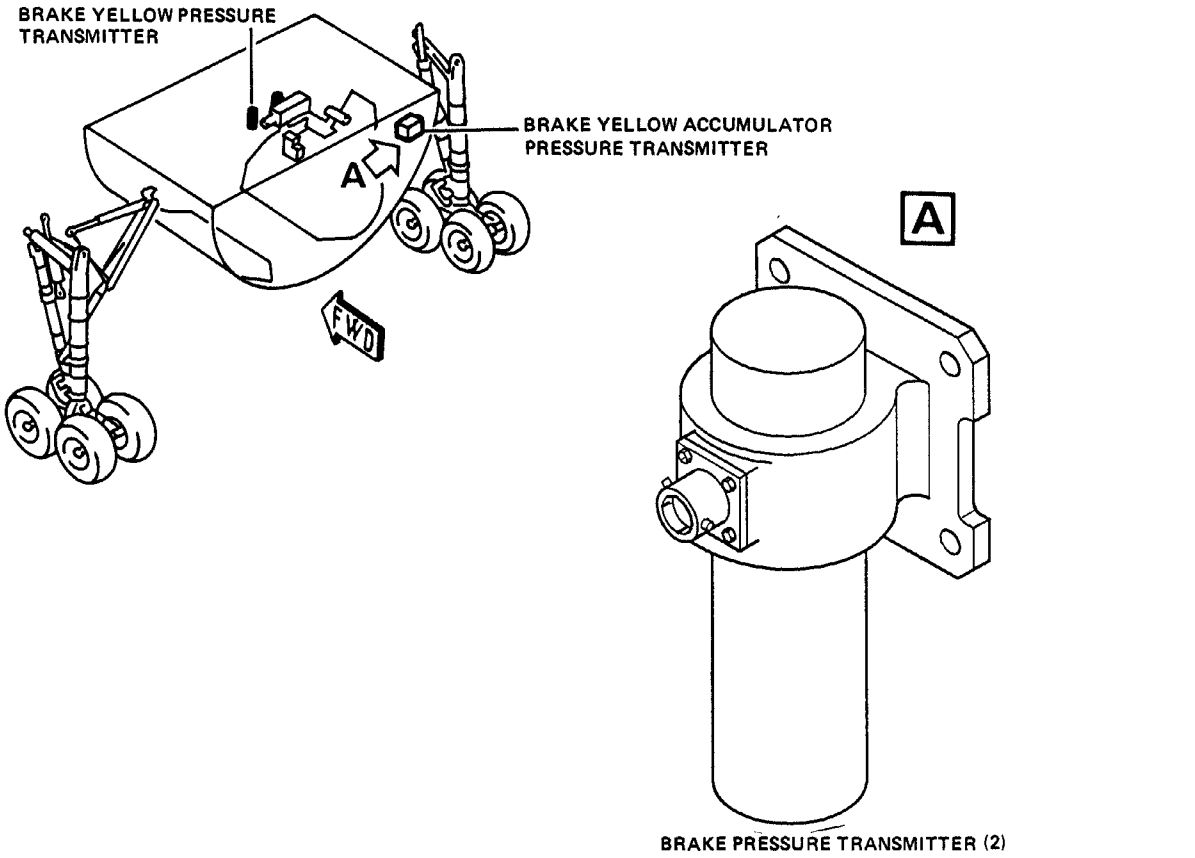
(2)Safety valves (Ref. Fig. 018)
The principle of operation is identical to that of the Normal safety valves.

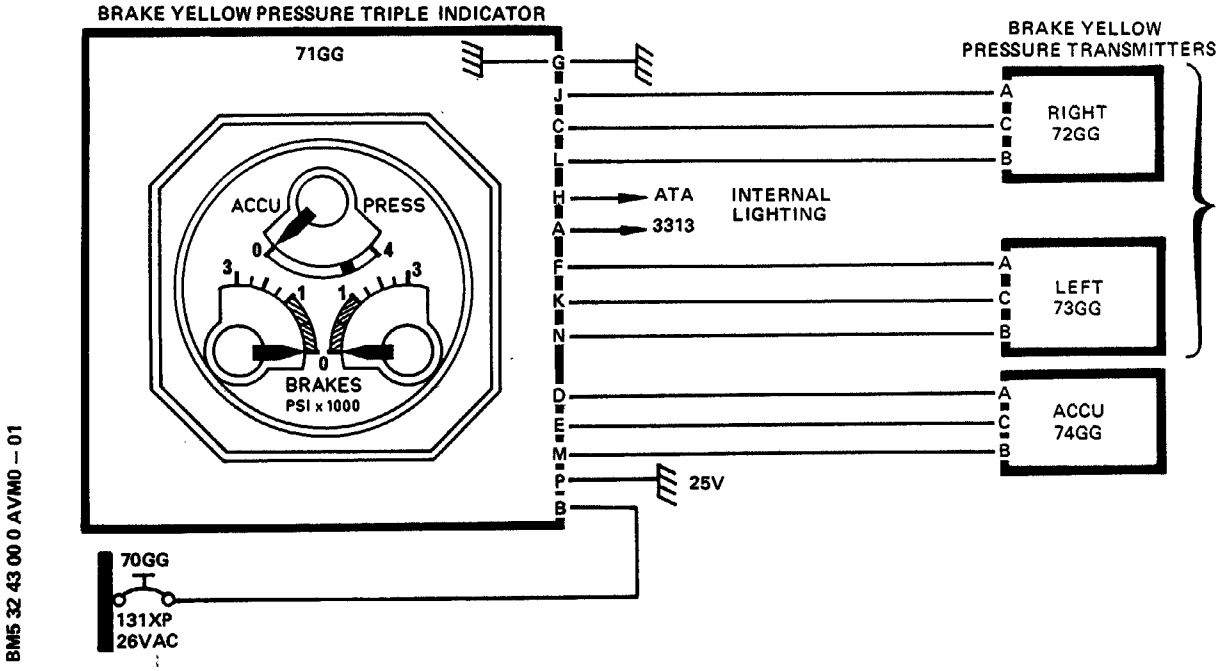
(3)Brake system return accumulators.



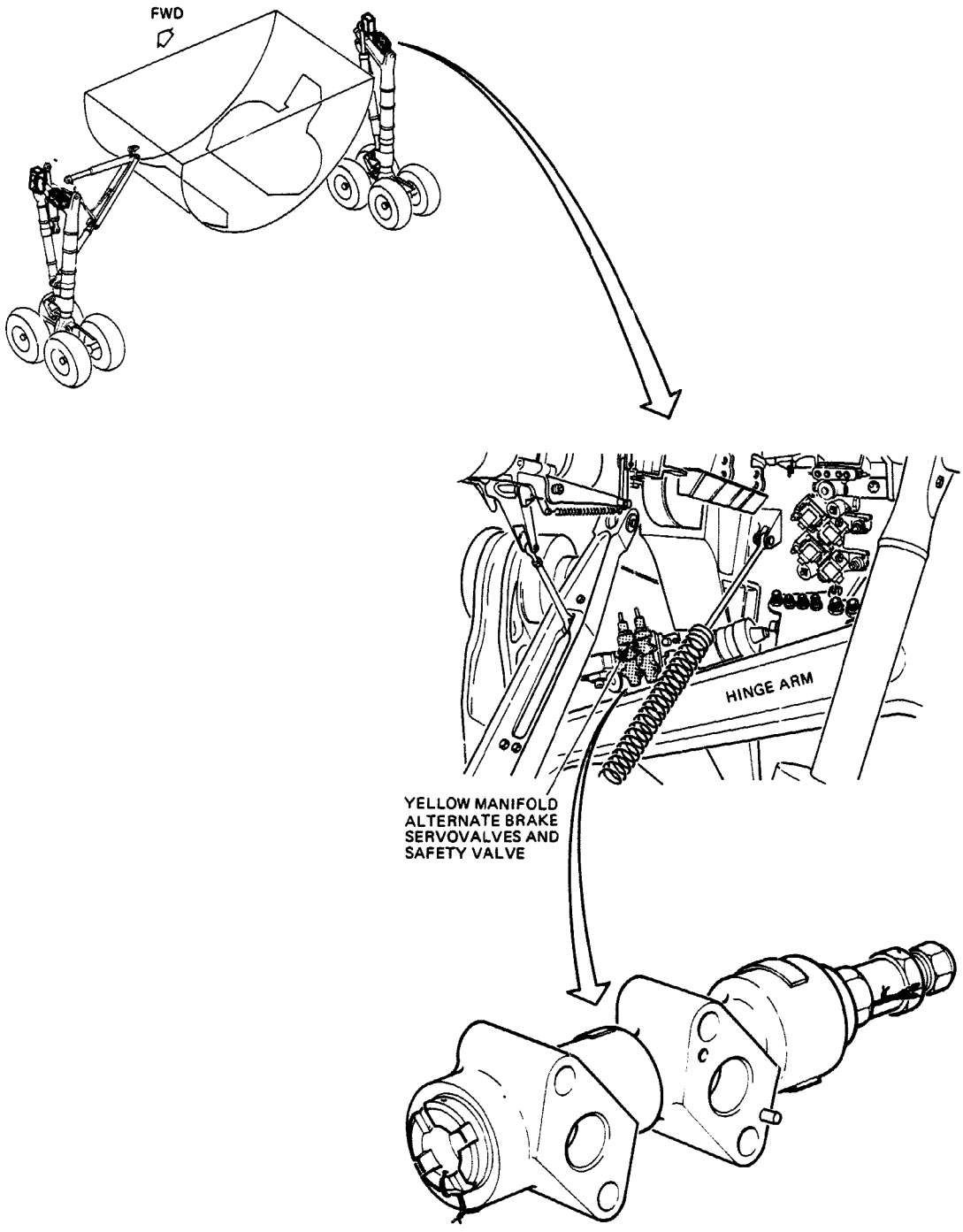


Dual Shuttle Valve
Figure 016





Yellow Pressure Transmitters
Figure 017



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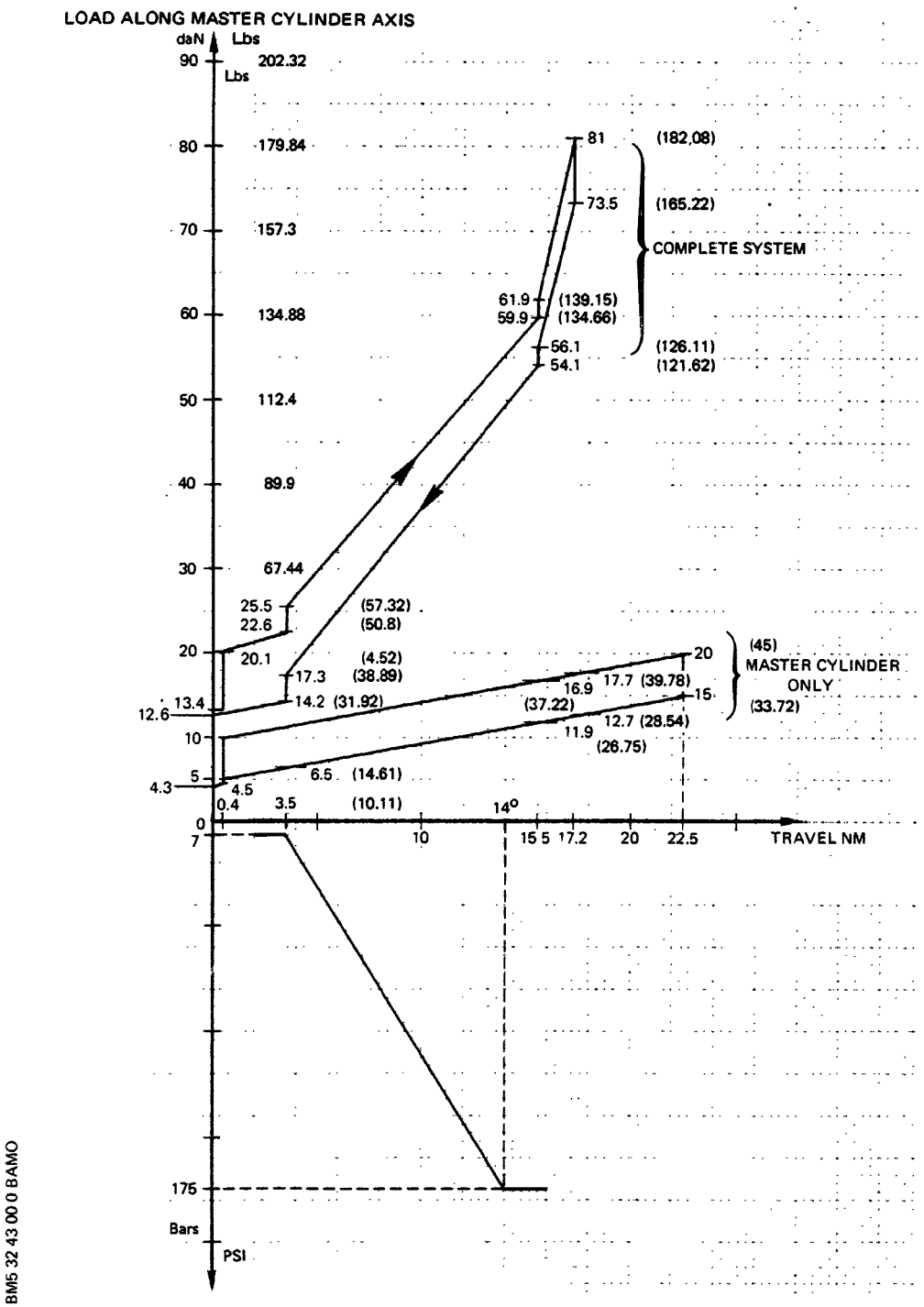
Alternate Brake Safety Valve
Figure 018

The accumulators, one per main gear, are installed on the Alternate brake servovalve manifold return.
They are identical to those installed in the Normal system return and perform the same function (Ref. 32-42-00 paragraph 2.J).

5. Operation - Pedal Artificial Feel

A. Control
Control input at the pedals is transmitted by a hydro-mechanical system between the master cylinders and the distribution dual valve (auxiliary low pressure control system).
Pedal load/angle versus pressure delivered to the Alternate brake servovalves is shown on the graph (Ref. Fig. 019)
Prior to obtaining pressure, pedal free travel corresponding to closure of the master cylinder internal valve, displacement of the distribution slide valve to shut off the return then admit the pressure, and the compressibility of the fluid in the low pressure system, must be taken up.
Incomplete bleeding of the low pressure system results in a reduction in load and an increase in free travel.
The brake Yellow pressure triple indicator, by displaying the pressure delivered by the distribution dual valve to the LH and RH brakes, indicates that the system is supplied with Yellow pressure. Pressure at the brakes can be reduced by the servovalves.

B. Anti Skid Regulation
Regulation is achieved by the regulators used for the Normal system (Ref. Fig. 020)
The servovalve receives brake release commands for the two wheels on the axle controlled by it.



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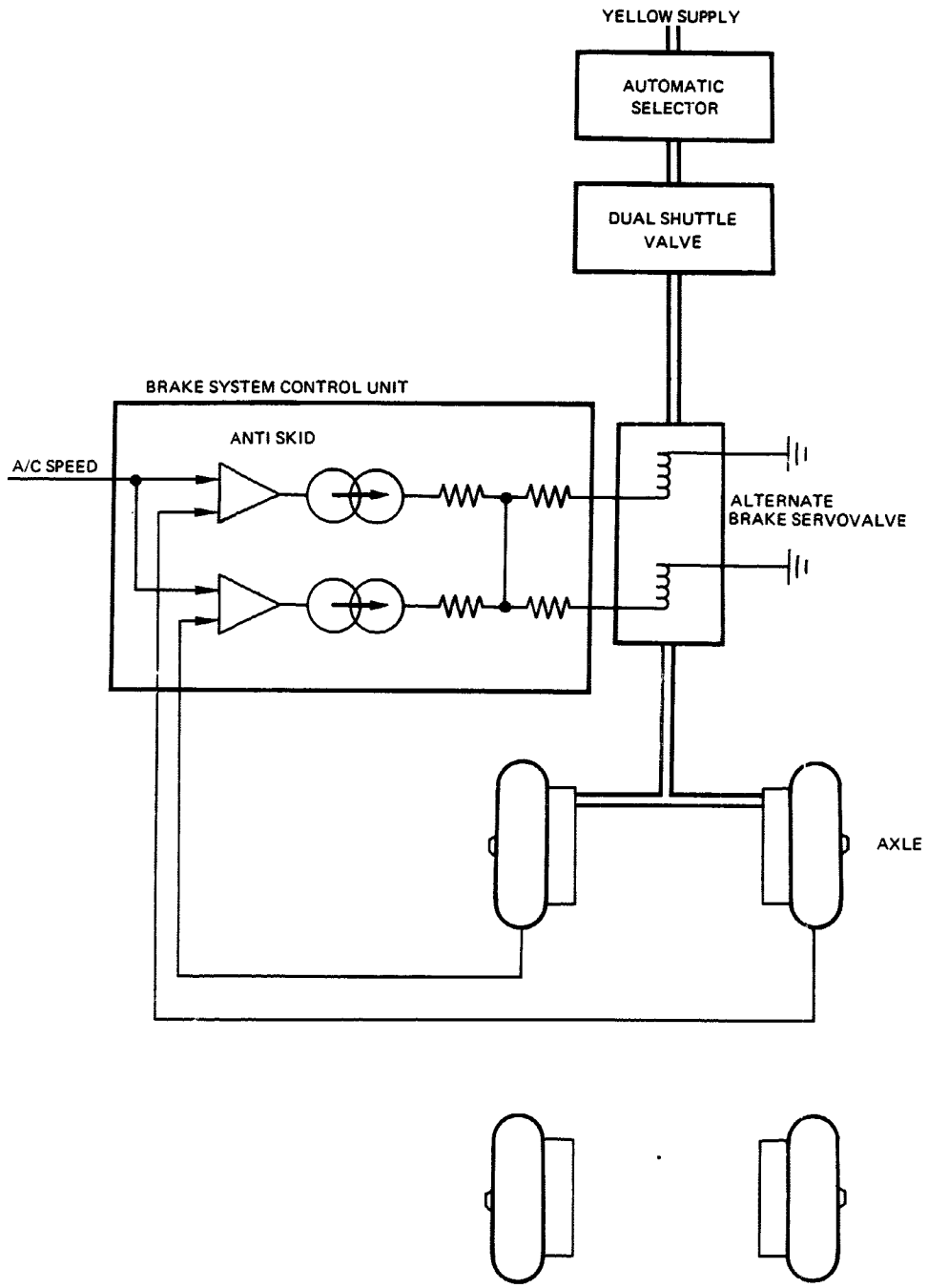
Pedal Artificial Feel
Figure 019



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Alternate Braking With Anti Skid - Principle
Figure 020

R WARNING : CHECK THAT THE LANDING GEAR GROUND SAFETIES INCLUDING WHEEL CHOCKS ARE IN POSITION.

BEFORE APPLYING OR RELIEVING HYDRAULIC SYSTEM PRESSURE, MAKE CERTAIN THAT THE TRAVEL RANGES OF THE CONTROL SURFACES ARE CLEAR.

BEFORE PRESSURIZING HYDRAULIC SYSTEMS, CHECK THAT ALL CONTROLS ARE SET TO CORRESPOND WITH THE ACTUAL POSITION OF THE SERVICES THEY OPERATE.

BEFORE POWER IS SUPPLIED TO THE AIRCRAFT MAKE CERTAIN THAT ELECTRICAL CIRCUITS UPON WHICH WORK IS IN PROGRESS ARE ISOLATED.

BEFORE PRESSURIZING HYDRAULIC SYSTEMS MAKE CERTAIN THAT HYDRAULIC SYSTEM UNDER MAINTENANCE HAS BEEN ISOLATED.

1. Not Applicable

2. Bleeding of Alternate Brake System From the Flight Compartment

A. Reason for the Job
(1)Bleeding of Alternate brake system following pipe replacement or removal/ installation of system components located upstream of the servovalves.

B. Equipment and Materials

ITEM	DESIGNATION
(1)	Wheel Chocks
(2)	Access Platforms (2.60 m - 4.70 m) (8 ft. 7 in. 15 ft. 5 in.)
(3)	Warning Notice
Referenced Procedures	
- 24-41-00, P. Block 301	AC External Power Control
- 29-21-00, P. Block 301	Green Auxiliary Power
- 29-23-00, P. Block 301	Yellow Auxiliary Power (Power Transfer Unit)

C. Procedure
(1)Job set-up

(a)Make certain that the following circuit breakers are closed :

	PANEL	SERVICE	IDENT.	LOCATION
	133VU	HYDRAULIC/BRAKES/FAN/CTL	17GS	331/V53
	133VU	HYDRAULIC/TIRE/PRESS	1GV	333/T54
	133VU	HYDRAULIC/BRAKES/TEMP/WARN	17GW	331/V54
	133VU	HYDRAULIC/BRAKES/TEMP/DET/UNIT	1GW	335/R58
	133VU	HYDRAULIC/BRAKES SYSTEM/CTL UNIT/CTL &/ WARN	5GG	333/T56
	133VU	HYDRAULIC/BRAKES SYSTEM/CTL UNIT/LAND/ RECOVERY/SUPPLY	98GG	333/T55
	133VU	HYDRAULIC/BRAKES SYSTEM/CTL UNIT/NORM	4GG	331/V55
	133VU	HYDRAULIC/BRAKES SYSTEM/CTL UNIT/SUPPLY	42GG	331/V56
	133VU	HYDRAULIC/BRAKES SYSTEM/CTL UNIT/NORM	2GG	332/U55
R	133VU	HYDRAULIC/BRAKES SYSTEM/CTL UNIT/SUPPLY	41GG	332/U56
	133VU	HYDRAULIC/AUTO BRK	95GG	335/R57
	133VU	L/G PROX DET/& RELAYS SYS2/FLT/GND	83GB	331/V51
	133VU	L/G PROX DET/& RELAYS SYS2/GEAR DOWN &/ OVHD PNL/FLT/GND	1GB	331/V52
	133VU	L/G PROX DET/& RELAYS SYS1/RELAYS &/ RETRACT/CTL	2GB	332/U51
	133VU	L/G PROX DET/& RELAYS SYS1/GEAR DN &/ CTR PNL/POS IND	3GB	332/U53
	133VU	L/G PROX DET/& RELAYS SYS1/FLT/GND	119GB	332/U52

WARNING : PRIOR TO OPENING CIRCUIT BREAKER 119GB LOCATED ON PANEL 133VU, TAKE THE APPROPRIATE SAFETY PRECAUTIONS (REF. 32-00-00, P. Block 501).

(b)Make certain that wheel chocks are in position.
(c)On panel 4VU
- make certain that landing gear control lever is in **DOWN** position and prohibit its operation by displaying a warning notice.

(d)On mechanical center pedestal 9VU
- make certain that **PARKING BRAKE** control handle is in **NORMAL** (released) position.

(e)Between First Officer's and Third Occupant's seats
- make certain that landing gear Free Fall control handle is in Normal position.

(f)Energize the electrical network (Ref. 24-41-00, P. Block 301).
(g)Make certain that electronics racks ventilation is correct.
(h)Pressurize Green auxiliary system by means of Green electric pumps (Ref. 29-21-00, P. Block 301)
(j)Pressurize Yellow auxiliary system by means of Green/Yellow power transfer units (Ref. 29-23-00, P. Block 301).
(k)On panel 401VU
- place **BRK/A/SKID** switch 96GG in **ALTN/ON** position in order to prevent pressurization of braking Green hydraulic system and display a warning notice prohibiting selection of switch 96GG to **NORM/ON** position.

(2)Bleeding
(a)Depress pedals and hold depressed.
(b)Perform anti skid test on maintenance panel.
1 On **ANTI SKID** section of maintenance panel 471VU, press and hold **OK/ PUSH TO TEST** pushbutton switch for more than 10 seconds.
On right **ECAM** display unit check that 8 brake release symbols appear then disappear after 10 seconds.
2 Carry out this test 10 times.
(c)Release the pedals.

(3)Close-up
(a)Cut off power supply to Green/Yellow power transfer units and Green electric pumps (Ref. 29-21-00, P. Block 301).
(b)De-energize the aircraft electrical network (Ref. 24-41-00, P. Block 301).
(c)Remove all ground handling and maintenance equipment, standard and special tools, together with ground power and replenishing equipment all access equipment and miscellaneous items.

3. Bleeding of Alternate Brake System at Brake Units

A. Reason for the Job
(1)Bleeding of high pressure braking system following all maintenance work downstream of the servovalves.

B. Equipment and Materials

ITEM	DESIGNATION
(1)99A29001006000	Unit - Topping up, Hydraulic Tank (Hand operated)
(2)	Wheel Chocks
(3)	Vinyl Tubing
(4)	Hydraulic Fluid Container
(5)Material No. 02-003	Hydraulic Fluids (Ref. 20-31-00)
Referenced Procedures	
- 12-12-29, P. Block 1	Hydraulics
- 24-41-00, P. Block 301	AC External Power Control
- 29-21-00, P. Block 301	Green Auxiliary Power
- 29-23-00, P. Block 301	Yellow Auxiliary Power (Power Transfer Unit)
- 32-43-00, P. Block 501	Alternate Braking with Anti Skid
- 32-42-36, P. Block 301	Safety Valve

C. Procedure

(1)Job set-up

(a)Make certain that wheel chocks are in position.

(b)On panel 4VU

- make certain that landing gear control lever is in **DOWN** position and prohibit its operation by displaying a warning notice.

(c)On mechanical center pedestal 9VU

- make certain that **PARKING BRAKE** control handle is in Normal (released) position.

(d)Place **BRK/A/SKID** switch **96GG** in **ALTN/ON** position to prevent pressurization of Normal braking Green hydraulic system and display a warning notice prohibiting selection of switch **96GG** to **NORM/ON** position.

(e)Energize the electrical network (Ref. 24-41-00, P. Block 301).

(f)Make certain that electronics racks ventilation is correct.

(g)Pressurize Green auxiliary system by means of Green electric pumps (Ref. 29-21-00, P. Block 301).

(h)Pressurize the Yellow auxiliary system by means of Green/Yellow power transfer units (Ref. 29-23-00, P. Block 301).

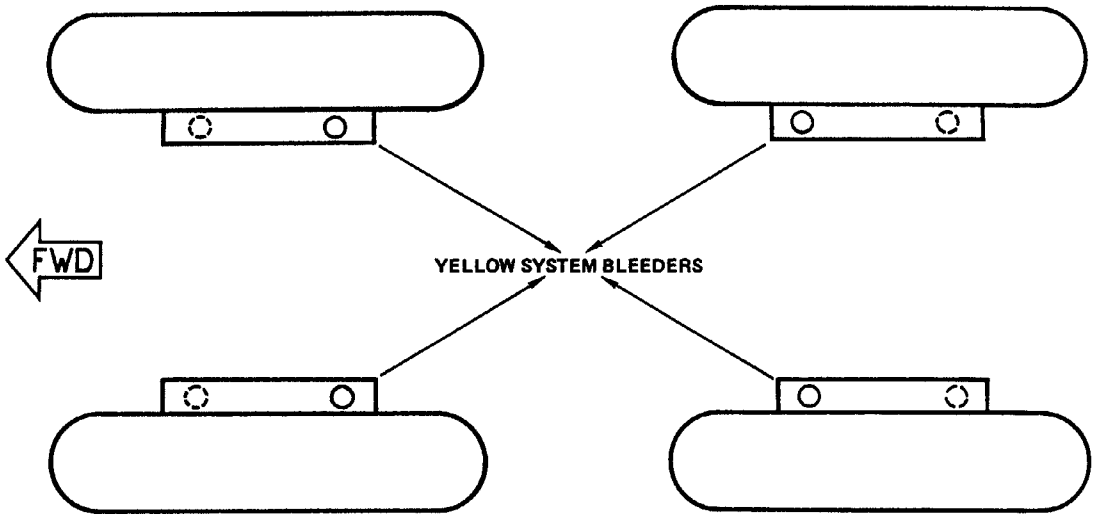
(j)Remove protective cap from bleed valve of any aft wheel brake unit and connect vinyl tubing to brake unit with free end of tube in hydraulic fluid recovery container.
(Ref. Fig. 301)
NOTE : Make certain that tools and connectors are clean.

(k)In the event of hydraulic line rupture, make certain that the associated safety valve is restored to normal operating condition (Ref. 32-42-36, P. Block 301).

(2)Bleeding

(a)Slightly depress Captain's brake pedal corresponding to brake unit to be bled so as to deliver to brakes a minimum pressure of approx. 10 bars (150 psi).

(b)Slowly open bleed valve so as to obtain steady fluid flow. Allow fluid to flow until it is completely free of air bubbles.



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High Pressure Braking System Bleeding
Figure 301

R

(c)Close bleed valve while maintaining pressure.
(d)Release pedal.
(e)Place **PARKING BRAKE** control handle in on (applied) position.
(f)With Parking brake system pressurized, very slowly open bleed valve to obtain steady fluid flow. Allow fluid to flow until it is completely free of air bubbles.
(g)Close bleed valve and place **PARKING BRAKE** control handle in **N**ormal (released) position.
(h)If there is still air in the system repeat above operation until all air is expelled.
(j)Disconnect vinyl tubing, clean bleed valve so as to eliminate all traces of hydraulic fluid and install protective cap. **TORQUE** to 0.68 m. da**N** (60 lbf. in.).
(k)Bleed the other brake units concerned as above.

(3)Test
Carry out an operational test of Alternate braking system (Ref. 32-43-00, P. Block 501) (Para. 1.D. Action Items 1, 2, 3, 4, 5 only).
R
NOTE : During braking test, visually check bleed valve for leakage.

(4)Close-up
(a)Cut off power supply to Green/Yellow power transfer units as well as to Green electric pumps (Ref. 29-21-00, P. Block 301 and 29-23-00, P. Block 301).
(b)Remove hydraulic fluid container.
(c)Make certain that working area is clean and clear of tools and miscellaneous items of equipment.
(d)Replenish hydraulic reservoirs as necessary (Ref. 12-12-29, P. Block 1).
(e)De-energize the aircraft electrical network (Ref. 24-41-00, P. Block 301).
(f)Remove warning notices.
(g)Place **BRK/A/SKID** switch **96GG** in **NORM/ON** position.
(h)Remove all ground handling and maintenance equipment, standard and special tools, together with ground power and replenishing equipment, all access equipment and miscellaneous items.

4. Low Pressure Brake System Replenishing and Bleeding

A. Reason for the Job
(1)Low pressure brake system replenishing and bleeding (Ref. 12-12-32, P. Block 1).

ALTERNATE BRAKING WITH ANTI SKID - ADJUSTMENT/TEST

WARNING : CHECK THAT THE LANDING GEAR GROUND SAFETIES INCLUDING WHEEL CHOCKS ARE IN POSITION.
BEFORE APPYLING OR RELIEVING HYDRAULIC SYSTEM PRESSURE, MAKE CERTAIN THAT THE TRAVEL RANGES OF THE CONTROL SURFACES ARE CLEAR.
BEFORE PRESSURIZING HYDRAULIC SYSTEMS, CHECK THAT ALL CONTROLS ARE SET TO CORRESPOND WITH THE ACTUAL POSITION OF THE SERVICES THEY OPERATE.
BEFORE PRESSURIZING HYDRAULIC SYSTEMS MAKE CERTAIN THAT HYDRAULIC SYSTEM UNDER MAINTENANCE HAS BEEN ISOLATED.
BEFORE POWER IS SUPPLIED TO THE AIRCRAFT MAKE CERTAIN THAT ELECTRICAL CIRCUITS UPON WHICH WORK IS IN PROGRESS ARE ISOLATED.

1. Operational Test

NOTE : Without any braking (brake pedal released) a slight pressure
R indication on triple indicator is quite normal and without effect.

A. Reason for the Job

(1)Annunciator light test (Ref. 32-42-00, P. Block 501, Normal Braking Operational Test, Paragraph 1.D)
(2)Anti skid system test
(3)Operational test of alternate braking with and without anti skid.

B. Equipment and Materials

ITEM	DESIGNATION
(1)	Wheel Chocks
(2)	Warning Notice
Referenced Procedures	
- 12-12-29, P. Block 1	Hydraulics
- 24-41-00, P. Block 301	AC External Power Control
- 29-21-00, P. Block 301	Green Auxiliary Power
- 29-23-00, P. Block 301	Yellow Auxiliary Power (Power transfer Unit)
- 32-42-00, P. Block 501	Normal Braking
- 32-43-14, P. Block 601	Alternate Brake Distribution Dual Valve (3301)

C. Procedure

(1)Job Set-up

CAUTION : AS THIS TEST IS PERFORMED IN STATIC CONFIGURATION, THE FULL DEPRESSING AND RELEASING ON THE PEDALS HAVE TO LAST ABOUT 20 SECONDS MINIMUM EACH, OTHERWISE EXCESSIVE PRESSURE COULD BE REACHED.

(a)Make certain that wheel chocks are in position
(b)Make certain that circuit breakers associated with braking systems (GG) and extension/retraction system (GB) are closed.
(c)On panel 4VU
- make certain that landing gear control lever is in DOWN position and prohibit its operation by displaying a warning notice.
(d)On mechanical center pedestal 9VU
- make certain that PARKING BRAKE control handle is in Normal (relea-

sed) position
(e)Energize the aircraft electrical network (Ref. 24-41-00, P. Block 301). Make certain that electronics racks ventilation is correct.
(f)Check that in Green and Yellow system accumulators nitrogen pressure is 100 bars (1450 psi) for an ambient temperature of 20°C.
(g)Check hydraulic fluid level in Green and Yellow hydraulic reservoirs and brake control hydraulic reservoir 4300. Replenish as required (Ref. 12-12-29, P. Block 1)
(h)On panel 401VU
- place **BRK/A/SKID** switch in **ALTN/ON** position

D. Tests
(1)Annunciator light test (Ref. 32-42-00, P. Block 501).
(2)Anti skid system test
(a)On panel 11VU, on **ECAM** control panel, press **WHEEL** pushbutton switch - **WHEEL** page is displayed on right **ECAM** display unit.

ACTION	RESULT
1. On maintenance panel 472VU - place **ANN LT** switch in **READ** position. On panel 11VU, on **ECAM** control panel - press **WHEEL** pushbutton switch On **ANTI SKID** section of maintenance panel 471VU - press **OK** pushbutton switch for more than 10 seconds	 On panel 4VU, on right **ECAM** display unit - Check that **WHEEL** page is displayed. On panel 471VU - **OK** legend comes on and goes off after 5 seconds. On panel 4VU, on right **ECAM** display unit - the 8 brake release symbols appear a few seconds after the **OK** push-button has been pressed. They disappear 10 seconds after this **OK** pushbutton has been released.
2. On panel 472VU - place **ANN LT** switch in **OFF** position.	 - Annunciator lights go off.

NOTE : A protective circuit interrupts the test after 10 seconds in the event of **OK** pushbutton switch failure (jamming of pushbutton switch in pressed position).
If **OK** pushbutton switch is released before the 10 seconds have elapsed, the **OK** legend goes off. The 8 brake release symbols disappear 10 seconds after the **OK** pushbutton switch has been released.

(3)Alternate braking with and without anti skid operational test
(a)Pressurize Green hydraulic system using electric pumps (Ref. 29-21-00, P. Block 301).
(b)Pressurize Yellow hydraulic system using Green/Yellow transfer unit (Ref. 29-23-00, P. Block 301).

ACTION	RESULT
1. On panel 401VU - make certain that **BRK/A/SKID** switch is in **ALTN/ON** position	On right **ECAM** display unit - No brake release symbol is displayed
2. Fully depress Captain's left and right pedals	On panel **4VU**, on triple indicator **71GG** - pressure delivered to the brakes is **175 ±10** bars **(2538 ±145** psi) - accumulator pressure is indicated on **ACCU PRESS** section of indicator On brakes - check that pistons associated with Yellow hydraulic system are in extended position (activated)
3. Release Captain's pedals	On panel **4VU**, on triple indicator **71GG** - pressure delivered to the brakes drops to zero
4. Progressively press Captain's pedals	- on triple indicator **71GG**, pressure delivered to the brakes increases progressively with pedal load.
5. Release pedals	
6. On panel 401VU - place **BRK/A/SKID** switch in **ALTN/OFF** position.	
7. Perform tests described in 2, 3, 4, 5 above	Results are identical to those obtained with **BRK/A/SKD** switch in **ALTN/ON** position.
8. On panel 401VU - place **BRK/A/SKD** switch in **NORM/ON** position.	

(c)Shut down Green/Yellow transfer unit.
(d)Shut down Green electric pumps.
(e)De-energize the aircraft electrical network (Ref. 24-41-00, P. Block 301).
(f)Remove warning notices
(g)Carry out an inspection/check of alternate brake distribution dual valve (3301) (Ref. 32-43-14, P. Block 601) if pressures are not correct.

2. Functional Test

NOTE : This test can be performed with aircraft resting on its wheels.

NOTE : Without any braking (brake pedal released) a slight pressure
R indication on triple indicator is quite normal and without effect.

A. Reason for the Job

(1)Annunciator light test (Ref. 32-42-00, P. Block 501).

(2)Test of Alternate braking distribution dual valve and automatic selector switchover

(3)Test of maximum pressure delivered to brakes.

(4)Test of anti skid system on the eight brakes.

B. Equipment and Materials

ITEM	DESIGNATION
(1)	Cart - Ground Power Supply and Preliminary Testing 150 l/min. (39.6 US gal/min.) Hydraulic
(2)	Unit - Topping Up, Hydraulic Tank (Hand Operated)
(3)860135953100001	Test Set - Landing Gear Safety Relay Control Simulator
(4)97A32402018000	Pressure Gage - Brake Block Hydraulic Pressure
(5)	Wheel Chocks
(6)	Warning Notice
(7)	Safety Barriers
Referenced Procedures	
- 12-12-29, P. Block 1	Hydraulics
- 24-41-00, P. Block 301	AC External Power Control
- 29-10-00, P. Block 301	Main Hydraulic Power - Pressurization/ Depressurization
- 29-23-00, P. Block 301	Yellow Auxiliary Power (Power Transfer Unit)
- 32-00-00, P. Block 501	Landing Gear
- 32-42-00, P. Block 501	Normal Braking

C. Procedure

(1)Job set-up

CAUTION : **AS THIS TEST IS PERFORMED IN STATIC CONFIGURATION, THE FULL DEPRESSING AND RELEASING ON THE PEDALS HAVE TO LAST ABOUT 20 SECONDS MINIMUM EACH, OTHERWISE EXCESSIVE PRESSURE COULD BE REACHED.**

(a)On panel 4VU

- make certain that landing gear control lever is is **DOWN** position and prohibit its operation by displaying a warning notice

(b)Make certain that wheel chocks are in position.

(c)Between First Officer's and Third Occupant's seats

- make certain that landing gear Free Fall extension control handle is in Normal position.

(d)On mechanical center pedestal 9VU

- make certain that **PARKING BRAKE** control handle is in Normal (released) position.

(e)If this test is performed with aircraft on jacks :
- connect landing gear safety relay control simulator test set (Ref. 32-00-00, P. Block 501) and place switches in **GROUND** and **DOWNLOCKED** position.

(f)Install a pressure gage on brake unit bleeder downstream of one of the Normal servovalves for para D. (2) only.

(g)Energize the aircraft electrical network (Ref. 24-41-00, P. Block 301). Make certain that electronics racks ventilation is correct.

(h)Make certain that circuit breakers associated with braking system (GG) and extension/retraction system (GB) are closed.

(j)Connect hydraulic ground power cart to Green and Yellow hydraulic systems (Ref. 29-10-00, P. Block 301) or pressurize hydraulic systems using green electric pump (Ref. 29-21-00, P. Block 301) and G/Y PTU (Ref. 29-23-00, P. Block 301).

(k)Check that in Green and Yellow system accumulators nitrogen pressure is 100 bars (1450 psi) for an ambient temperature of 20°C.

(l)Check hydraulic fluid level in Green and Yellow hydraulic reservoirs and brake control hydraulic reservoir 4300.
Replenish as required (Ref. 12-12-29, P. Block 1)

D. Tests
(1)Annunciator light test (Ref. 32-42-00, P. Block 501).
(2)Test of Alternate braking distribution dual valve and automatic selector switchover.
NOTE : This test can be performed without pressure gages installed downstream of each Alternate servovalve.
(a)On panel 4VU
- make certain that landing gear control lever is in DOWN position and prohibit its operation by displaying a warning notice.
(b)Pressurize Green and Yellow hydraulic systems (Ref. 29-10-00, P. Block 301).
(c)On panel 11VU, on ECAM control panel, press WHEEL pushbutton switch
- WHEEL page is displayed on right ECAM display unit.

ACTION	RESULT
1. On panel 401VU - place BRK/A/SKID switch in NORM/ ON position	On right ECAM display unit - No brake release symbol is displayed
2. Depress Captain's pedals until pressure is obtained at brakes (pressure read on pressure gage installed downstream of one of the Normal servovalves)	On panel 4VU, on triple indicator 71GG - indicated pressure is still zero
3. On panel 401VU - place BRK/A/SKID switch in ALTN/ ON position	On triple indicator 71GG - Yellow pressure delivered to brakes increases - Green pressure read on pressure gage installed downstream of normaL servovalve drops to zero
4. Gradually release then depress Captain's pedals	On triple indicator 71GG - pressure progressively decreases when Captain's pedals are released and progressively increases when pedals are depressed.
5. Place BRK/A/SKID switch in ALTN/ OFF position On ECAM section of maintenance panel 470VU press INHIB/OVRD pushbutton switch.	On triple indicator 71GG - pressure remains constant (Yellow pressure operational) On panel 8VU On Captain and F/O main instrument panels 3VU and 5VU - MASTER CAUTION lights come on. - Single chime sounds. On panel 4VU On left ECAM display unit - Following message is displayed BRAKES (amber) ANTI SKID OFF (amber)

ACTION	RESULT
	- MAX BRK PRESS 1000 psi (blue) AUTO BRK FAULT (amber)
6. Release Captain's pedals	On pressure indicator 71GG - pressure delivered to the brakes drops to zero.
7. Place BRK/A/SKID switch 96GG in NORM/ON position	On panel 8VU, on Captain and F/O main instrument panels 3VU and 5VU. - MASTER CAUTION lights go off. On panel 4VU, on left ECAM display unit. - message is no longer displayed.

(d)Depressurize Green and Yellow hydraulic systems

(3)Test of pressure delivered to brakes

NOTE : This test can be performed without pressure gage installed downstream of one of the Normal servovalves (Green pressure)

(a)On panel 4VU
- make certain that landing gear control lever is in **DOWN** position

(b)Make certain that Green hydraulic system is depressurized.

(c)Pressurize Yellow hydraulic system (Ref. 29-10-00, P. Block 301) or alternately use Yellow electric pump controlled by parking brake accumulator pushbutton switch up to maximum pressure.

ACTION	RESULT
1. On panel 401VU - place **BRK/A/SKID** switch in **ALTN/ON** position	
2. Fully depress Captain's pedals	On panel 4VU, on triple indicator 71GG - maximum pressure delivered to brakes is 175 ±10 bars (2538 ±145 psi)
3. Release Captain's pedals	- pressure delivered to all 8 brakes drops to zero
4. Perform operations 1., 2., 3. using First Officer's pedals	Results as for paragraphs 1., 2. and 3

(d)Depressurize Yellow hydraulic system (Ref. 29-10-00, P. Block 301)

(4)Test of anti skid system on the eight brakes.

NOTE : This test can be performed without pressure gage installed downstream of one ot the Normal servovalves (Green pressure).

(a)Make certain that Green hydraulic system is depressurized.

(b)On panel 4VU
- make certain that landing gear control lever is in **DOWN** position.

R (c)Pressurize Yellow hydraulic system (Ref. 29-10-00, P. Block 301).

(d)On panel 11VU, on ECAM control panel, press **WHEEL** pushbutton switch
- **WHEEL** page is displayed on right ECAM display unit.

ACTION	RESULT
1. On panel 401VU - place **BRK/A/SKID** switch in **ALTN/ON** position	
2. Depress Captain's left and right pedals	On panel 4VU, on triple indicator 71GG - Yellow pressure is delivered to the eight brakes
3. On **ANTI SKID** section of panel 471VU - momentarily press **PUSH TO TEST/OK**	On right **ECAM** display unit - 8 brake release symbols are dis-

ACTION	RESULT
pushbutton switch.	played for 10 s approx. On brake units, - pistons associated with Yellow system are in de-activated position (anti-skid system operational).
R 4.	When 8 brake release symbols disappear on right ECAM display unit (after 10 s approx) - pistons associated with Yellow system are in activated position (anti-skid inoperative).
R 5. Release Captain's left and right pedals	On pressure indicator 71GG - pressure delivered to the eight brakes is zero.
R 6. Perform operations 2., 3., 4. and 5. using First Officer's pedals	Results as for paragraphs 2., 3., 4. and 5.

(e)Depressurize Yellow hydraulic system (Ref. 29-10-00, P. Block 301).

E. Close-Up

(1)On panel 4VU
- make certain landing gear control lever is in DOWN position.

(2)If this test has been performed with aircraft on jacks, disconnect landing gear safety relay control simulator test set (Ref. 32-00-00, P. Block 501).

(3)Remove Green pressure gage and bleed Normal braking system (Ref. 32-42-00, P. Block 301). Bleeding will not to be required if gage was connected on brake unit

(4)Depressurize hydraulic systems and disconnect hydraulic ground power carts (Ref. 29-10-00, P. Block 301).

(5)Check hydraulic fluid level in Green and Yellow hydraulic reservoirs and replenish as required (Ref. 12-12-29, P. Block 1)

(6)Check for hydraulic fluid leakage.

(7)De-energize the aircraft electrical network (Ref. 24-41-00, P. Block 301).

(8)Remove warning notices

(9)Remove all ground handling and maintenance equipment standard and special tools, together with ground power and replenishing equipment, all access equipment and miscellaneous items.

3. System Test

NOTE : Without any braking (brake pedal released) a slight pressure
R indication on triple indicator is quite normal and without effect.

A. Reason for the Job

(1)Annunciator light test (Ref. 32-42-00, P. Block 501).
(2)Test of Alternate braking distribution dual valve and automatic selector switchover.
(3)Test for correct operation of pedals
(4)Automatic selector NORM/ON to ALTN/ON switchover test.
(5)Test of braking inhibition prior to main gear touch-down.
(6)Test of braking upon main gear touch-down.
(7)Anti skid system operational test.

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B. Equipment and Materials

ITEM	DESIGNATION
(1)	Cart - Ground Power Supply and Preliminary Testing 150 l/min. (39.6 US gal/min.) Hydraulic
(2)860135953100001	Test Set - Landing Gear Safety Relay Control Simulator
(3)97A32402018000	Pressure Gage - Brake Block Hydraulic Pressure
(4)860135958100001 or 860135958100003 or 98D32403003000	Wheel Generator Driving Device
(5)	Safety Barriers
(6)	Warning Notice
(7)	Access Platform 2.60 m (8 ft. 7 in.)
Referenced Procedures	
- 07-11-00, P. Block 1	Jacking for Aircraft Maintenance Operations
- 12-12-29, P. Block 1	Hydraulics
- 24-41-00, P. Block 301	AC External Power Control
- 29-10-00, P. Block 301	Main Hydraulic Power - Pressurization/ Depressurization
- 29-21-00, P. Block 301	Green Auxiliary Power
- 29-23-00, P. Block 301	Yellow Auxiliary Power (Power Transfer Unit)
- 29-24-00, P. Block 301	Yellow Auxiliary Power (Electric Pump)
- 32-00-00, P. Block 501	Landing Gear
- 32-12-11, P. Block 301	Main Gear Main Door - (Ground Door(s) Opening)
- 32-42-00, P. Block 301	Normal Braking
- 32-43-00, P. Block 301	Alternate Braking with Anti Skid

R **ON A/C ALL

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B. Equipment and Materials

ITEM	DESIGNATION
(1)	Cart - Ground Power Supply and Preliminary Testing 150 l/min. (39.6 US gal/min.) Hydraulic
(2)860135953100001	Test Set - Landing Gear Safety Relay Control Simulator
(3)97A32402018000	Pressure Gage - Brake Block Hydraulic Pressure
(4)860135958100001 or 860135958100004 or 98D32403004000	Wheel Generator Driving Device
(5)	Safety Barriers
(6)	Warning Notice
(7)	Access Platform 2.60 m (8 ft. 7 in.)
Referenced Procedures	
- 07-11-00, P. Block 1	Jacking for Aircraft Maintenance Operations
- 12-12-29, P. Block 1	Hydraulics
- 24-41-00, P. Block 301	AC External Power Control
- 29-10-00, P. Block 301	Main Hydraulic Power - Pressurization/ Depressurization
- 29-21-00, P. Block 301	Green Auxiliary Power
- 29-23-00, P. Block 301	Yellow Auxiliary Power (Power Transfer Unit)
- 29-24-00, P. Block 301	Yellow Auxiliary Power (Electric Pump)
- 32-00-00, P. Block 501	Landing Gear
- 32-12-11, P. Block 301	Main Gear Main Door - (Ground Door(s) Opening)
- 32-42-00, P. Block 301	Normal Braking
- 32-43-00, P. Block 301	Alternate Braking with Anti Skid

**ON A/C ALL

C. Procedure

(1)Job set-up

CAUTION : AS THIS TEST IS PERFORMED IN STATIC CONFIGURATION, THE FULL DEPRESSING AND RELEASING ON THE PEDALS HAVE TO LAST ABOUT 20 SECONDS MINIMUM EACH, OTHERWISE EXCESSIVE PRESSURE COULD BE REACHED.

(a)On panel 4VU

- make certain that landing gear control lever is in DOWN position and prohibit its operation by displaying a warning notice.

(b)Between First Officer's and Third Occupant's seats

- make certain that landing gear Free Fall extension control handle is in Normal position.

NOTE : Tests (1), (2), (3), (4), (7) and (8) do not require job set-up para. (c), (d), (e), (f) and (g) if tests are to be performed with aircraft resting on its wheels.

(c)Position safety barriers prohibiting access to gear door travel ranges.

(d)Position access platform.

WARNING : MAKE CERTAIN THAT DOOR TRAVEL RANGES ARE CLEAR.

(e)Open left main landing gear door (Ref. 32-12-11, P. Block 301).

WARNING : WHEN DOORS ARE OPEN MAKE CERTAIN THAT SAFETY COLLARS ARE POSITIONED ON DOOR ACTUATING CYLINDERS.

(f)Jack up aircraft until wheels are clear of ground (Ref. 07-11-00, P. Block 1).

(g)Connect landing gear safety relay control simulator test set (Ref. 32-00-00, P. Block 501) and place switches in FLIGHT and DOWNLOCKED position.

(h)On mechanical center pedestal 9VU

- make certain that PARKING BRAKE control handle is in Normal (released) position.

(j)Install pressure gage on brake unit bleeder downstream of one of the left and right gear Normal servovalves for tests which need a positive pressure indication only.

(k)Install pressure gage downstream of each Alternate servovalve.

(l)Energize the aircraft electrical network (Ref. 24-41-00, P. Block 301). Make certain that electronics racks ventilation is correct.

(m)Make certain that circuit breakers associated with braking system (circuit GG, panel 133VU, lines 331, 332 and 333) and gear extension/retraction system (circuit GB, panel 133VU, lines 331 and 332) are closed.

(n)Connect hydraulic ground power cart to Green and Yellow hydraulic systems (Ref. 29-10-00, P. Block 301) or pressurize hydraulic systems using green electric pump (Ref. 29-21-00, P. Block 301) and G/Y PTU (Ref. 29-23-00, P. Block 301).

NOTE : As an alternative and only to perform tests (3) and (4), the Yellow hydraulic system can be pressurized using Yellow electric pump (Ref. 29-24-00, P. Block 301).

(p)Check that in Green and Yellow system accumulators nitrogen pressure is 100 bars (1450 psi) for an ambient temperature of 20°C.

(q)Check that hydraulic fluid level in Green and Yellow hydraulic reservoirs and brake control hydraulic reservoir 4300- Replenish as required (Ref. 12-12-29, P. Block 1)

D. Tests

(1)Annunciator light test (Ref. 32-42-00, P. Block 501, Normal Braking Operational Test, Paragraph D).

(2)Test of Alternate braking distribution dual valve and automatic selector switchover (Ref. Functional Test, Paragraph 2.D.)

(3)Test for correct operation of pedals.

NOTE : This test can be performed with aircraft resting on its wheels.

(a)On panel 4VU

- make certain that landing gear control lever is in **DOWN** position.

(b)Pressurize Yellow hydraulic system (Ref. 29-10-00, P. Block 301).

(c)On panel 401VU

Place **BRK/A/SKID** switch in **ALTN/ON** position

(d)Test

ACTION	RESULT
1. Depress Captain's left pedal	- Pressure is applied to the four brakes of left main gear only
2. Release Captain's left pedal	- Pressure at the four left gear brakes drops to zero.
3. Perform operations 1. and 2. using Captain's right pedal and First Officer's pedals.	Results as for paragraphs 1. and 2.

(4)Automatic selector NORM/ON to ALTN/ON switchover test.
(a)On panel 4VU
- make certain that landing gear control lever is in DOWN position.
(b)Pressurize Green and Yellow hydraulic systems to 206 bars (2988 psi).
(c)On panel 401VU, place BRK/A/SKID switch in NORM/ON position.
(d)Test

ACTION	RESULT
1. Fully depress Captain's left and right pedals until a pressure of 190 bars is obtained downstream of Normal servovalves (right and left gears)	- Check that pressure downstream of alternate servovalves is zero. On panel 4VU, on triple indicator 71GG - pressure delivered to left and right gear brakes is zero
2. Using hydraulic ground power cart reduce Green system pressure to 80 ±10 bars (1160 ±145 psi) approx.	On pressure gages in line downstream of Normal servovalves (Green system) - pressure drops to zero On panel 4VU, on BRAKES section of triple indicator 71GG - Yellow pressure is applied to brakes
3. Using hydraulic ground power cart increase Green system pressure to 155 ±10 bars (2247 ±145 psi) approx.	On BRAKES section of triple indicator 71GG - Yellow pressure drops to zero On pressure gages downstream of Normal servovalves (Green system), - Maximum pressure (≅ 206 bars) (3000 psi) is applied to brakes
4. Release Captain's pedals	

(5)Test of braking inhibition prior to main gear touch-down.
NOTE : If this test is performed with aircraft on jacks, the landing gear safety relay control simulator test set is not required, the test being performed in flight configuration.
NOTE : If this test is performed with aircraft resting on its wheels.
- Connect the landing gear safety relay control simulator test set (Ref. 32-00-00, P. Block 501).
- Place switches 63GB, 65GB, 55GB, 82GB, 64GB and 62GB in FLIGHT position
- Place switches 67GB, 81GB, 40GB, 79GB, 66GB and 80GB in DOWN-LOCKED position.

(a)On mechanical center pedestal 9VU
- make certain that PARKING BRAKE control handle is in Normal (released) position.
(b)On panel 4VU
- make certain that landing gear control lever is in DOWN position.
(c)Pressurize Yellow hydraulic system (Ref. 29-10-00, P. Block 301).

(d)On panel 401VU
- place **BRK/A/SKID** switch in **ALTN/ON** position.

(e)Test

ACTION	RESULT
1. On panel 11VU, on ECAM control panel - press WHEEL pushbutton switch	On panel 4VU, on right ECAM display unit - WHEEL page is displayed - 8 brake release symbols appear
2. Depress Captain's left pedal	- No pressure is delivered to left gear brakes . No pressure on pressure gage . Pressure indicated on triple indicator.
3. Depress Captain's right pedal	- No pressure is delivered to right gear brakes . No pressure on pressure gage . Pressure indicated on triple indicator.
4. Release Captain's pedals	

NOTE : If this test has been performed with aircraft resting on its wheels disconnect landing gear safety relay control simulator test set (Ref. 32-00-00, P. Block 501).

(6)Test of braking upon main gear touch-down.
NOTE : This test can be performed with aircraft resting on its wheels.
(a)Remove drive shrouds from main gears tachometers.
(b)Install tachometer driving equipment on one of the main gear wheels and connect to driving equipment test set.
(c)Connect landing gear safety relay control simulator test set (Ref. 32-00-00, P. Block 501).
R (d)Place switches 65GB/63GB/55GB/82GB/64GB/62GB/3XG/8GA/9GA/11GA and 12GA
R in FLIGHT position.
R (e)Place switches 67GB/81GB/40GB/79GB/66GB and 80GB in DOWNLOCKED position.
(f)On mechanical center pedestal 9VU
- make certain that PARKING BRAKE control handle is in Normal (released) position.
(g)On panel 4VU
- make certain that landing gear control lever is in DOWN position.
(h)Make certain that BRK/A/SKID switch is in ALTN/ON position.
301).
(j)Test

ACTION	RESULT
1. On panel 11VU, on ECAM control panel, - press WHEEL pushbutton switch	On panel 4VU, on right ECAM display unit - WHEEL page is displayed - 8 brake release symbols appear.
2. On driving equipment test set - check that tachometer speed is zero.	
3. Depress Captain's L (R) pedal if driving L (R) main wheel tachometer.	No change
4. Using the driving equipment drive wheel 1 tachometer at a speed of 1500 rpm approx.	- No Yellow pressure felt at wheels 1 and 2 (gage on Yellow bleeder reads zero).
5. Drive wheel 2 tachometer (second tachometer on axle)	- Yellow pressure is applied to brakes of wheels 1 and 2
6. Stop driving one of the two tachometers (wheel 1 or 2)	- Yellow pressure is no longer applied to brakes of wheels 1 and 2
7. Release Captain's L (R) pedal.	
8. Perform operations 3-4-5-6-7 for each axle.	- Results as for paragraph 3, 4, 5, 6, 7.

ACTION	RESULT
9. Shut down driving equipment power supply and remove driving equipment.	
10. Install tachometer drive shrouds.	

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(j)Disconnect landing gear safety relay control simulator test set (Ref. 32-00-00, P. Block 501).
(7)Anti skid system operational test
NOTE 1 : This test can be performed with aircraft resting on its wheels (ground configuration)
NOTE 2 : Accomplishment of this test requires use of two driving equipment 860135958100001 or 860135958100003 or 98D32403003000.
(a)On mechanical center pedestal 9VU
- make certain that PARKING BRAKE control handle is in Normal (released) position.
(b)On panel 4VU
- make certain that landing gear control lever is in DOWN position.
(c)Remove drive shrouds from main and nose gear tachometers.
(d)Install the tachometer driving equipment to the two wheels of a same axle and connect driving equipment to test set.
(e)On driving equipment test sets check that tachometer speed is set to minimum.
(f)Pressurize Yellow hydraulic system (Ref. 29-10-00, P. Block 301).
(g)On panel 401VU, place BRK/A/SKD switch in ALT/ON position.
(h)Test

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(k)Disconnect landing gear safety relay control simulator test set (Ref. 32-00-00, P. Block 501).
(7)Anti skid system operational test
NOTE 1 : This test can be performed with aircraft resting on its wheels (ground configuration)
NOTE 2 : Accomplishment of this test requires use of two driving equipment 860135958100001 or 860135958100004 or 98D32403004000.
(a)On mechanical center pedestal 9VU
- make certain that PARKING BRAKE control handle is in Normal (released) position.
(b)On panel 4VU
- make certain that landing gear control lever is in DOWN position.
(c)Remove drive shrouds from main and nose gear tachometers.
(d)Install the tachometer driving equipment to the two wheels of a same axle and connect driving equipment to test set.
(e)On driving equipment test sets check that tachometer speed is set to minimum.
(f)Pressurize Yellow hydraulic system (Ref. 29-10-00, P. Block 301).
(g)On panel 401VU, place BRK/A/SKD switch in ALT/ON position.
(h)Test

ACTION	RESULT
R **ON A/C ALL	
1. On panel 11VU, on ECAM control panel - press WHEEL pushbutton switch	On panel 4VU, on right ECAM display unit - WHEEL page is displayed. - No brake release symbols are displayed.
2. Press Captain's L (R) pedal for L (R) main wheel operation	
3. Using driving equipment drive tachometers of wheels 1 and 2 (front left axle) at a speed of 1000 rpm approx. Reduce tachometer speed to zero	- On wheels concerned, brake pressure remains constant.
4. Stop driving tachometer of wheels 1 and 2. Shut driving equipment power supply and remove driving equipment.	
5. Release Captain's L (R) pedal.	- No pressure at wheels.
6. Perform operations 2, 3, 4, 5 on the the other axles (wheels 3 and 4, 5 and 6, 7 and 8)	Results as for paragraphs 2, 3, 4, 5.
7. On nose gear left wheel install driving equipment and connect to test set. Check that speed is set to minimum	
8. Drive nose gear tachometer at a speed of 1000 rpm approx.	On panel 4VU, on right ECAM display unit - 8 brake release symbols appear. Main gear wheel speed is zero (blocked wheel simulation)
9. Using driving equipment drive tachometers of left main gear wheels 1 and 2 at a low speed (≅ 400 rpm)	On right ECAM display unit - 8 brake release symbols are still displayed.
10. Depress pedal corresponding to wheels the tachometers of which are driven (Captain's or First Officer's left pedal)	- The corresponding wheels are not braked

ACTION	RESULT
11. Increase rotational speed of wheel 1 and 2 tachometers to 700 rpm approx.	On right ECAM display unit - brake release symbols corresponding to wheels 1 and 2 disappear.
12. Maintain pedal corresponding to the driven wheels depressed	- The corresponding wheels only are braked.
13. Reduce rotational speed of main gear tachometer	- The wheels are no longer braked when tachometer speed is 400 rpm approx. On right ECAM display unit - brake release symbols corresponding to wheel 1 and 2 appear when brakes are released.
14. Release pedal and stop driving main gear wheel tachometers	
15. Perform operations 8. to 13. on the three other main gear axles.	Results as for paragraphs 8. to 13.
16. Stop driving tachometer of nose gear left wheel and remove driving equipment.	
17. Install driving equipment on nose gear right wheel and perform operations 7. to 13.	Results as for paragraphs 7. to 13.
18. Shut down driving equipment power supply and remove driving equipment	
19. Install tachometer drive shrouds.	

E. Close Up

(1) Disconnect landing gear safety relay control simulator test set (Ref. 32-00-00, P. Block 501).
(2) Lower the aircraft onto its wheels (Ref. 07-11-00, P. Block 1).
(3) Remove pressure gages and bleed Normal and Alternate braking systems (Ref. 32-42-00, P. Block 301 and 32.43.00, P. Block 301).
(4) Depressurize Green and Yellow hydraulic systems and disconnect hydraulic ground power carts (Ref. 29-10-00, P. Block 301).
(5) Check hydraulic fluid level in hydraulic reservoirs and replenish as required (Ref. 12-12-29, P. Block 301).
(6) Check for hydraulic fluid leakage
(7) Close left main landing gear door (Ref. 32-12-11, P. Block 301)
(8) De-energize the aircraft electrical network (Ref. 24-41-00, P. Block 301).

(9)Remove warning notices, all ground handling and maintenance equipment and make certain that working area is clean and clear of tools and miscellaneous items of equipment. (Ref. 29-10-00, P. Block 301). working area is clean and clear of tools and miscellaneous items of equipment.

ALTERNATE BRAKING - INOPERATIVE BRAKE INDICATOR - TEST

Ref. MMEL Sect. 1.32 Item 16
CAUTION : THIS PROCEDURE IS TO BE USED ACCORDING TO THE REQUIREMENTS OF THE MMEL.
IT IS APPLIED IF ONE OR BOTH BRAKE INDICATORS OF THE BRAKE YELLOW PRESSURE TRIPLE INDICATOR (71GG) IS/ARE INOPERATIVE PROVIDED THAT THE ACCU PRESS INDICATOR IS OPERATIVE.

1. Reason for the Job

A. Test of ACCU PRESS indicator on Brake Yellow Pressure Triple Indicator

B. Test of Anti Skid System from Maintenance Panel

C. Operational Test of Normal Braking

D. Operational Test of Alternate Braking with and without Anti Skid

2. Equipment and Materials

ITEM	DESIGNATION
(1)	Wheel Chocks
(2)	Warning Notice
(3)97A32402018000	Pressure Gage - Brake Block Hydraulic Pressure
Referenced Procedures	
- 29-21-00, P. Block 301	Green Auxiliary Power
- 29-23-00, P. Block 301	Yellow Auxiliary Power (Power Transfer Unit)
- 24-41-00, P. Block 301	AC External Power Control

R 3. Procedure

R A. Job Set-up
R (1)Make certain that wheel chocks are in position.
R (2)Make certain that circuit breakers associated with braking system (circuit GG) and gear extension/retraction system (circuit GB) are closed.

R PANEL	SERVICE	IDENT.	LOCATION
R 133VU	HYDRAULIC/BRAKES SYSTEM/CTL UNIT/CTL &/ WARN	5GG	333/T56
R 133VU	HYDRAULIC/BRAKES SYSTEM/CTL UNIT/LAND/ RECOVERY/SUPPLY	98GG	333/T55
R 133VU	HYDRAULIC/BRAKES SYSTEM/CTL UNIT/NORM	4GG	331/V55
R 133VU	HYDRAULIC/BRAKES SYSTEM/CTL UNIT/SUPPLY	42GG	331/V56
R 133VU	HYDRAULIC/BRAKES SYSTEM/CTL UNIT/NORM	2GG	332/U55
R 133VU	HYDRAULIC/BRAKES SYSTEM/CTL UNIT/SUPPLY	41GG	332/U56
R 133VU	HYDRAULIC/AUTO BRK	95GG	335/R57
R 133VU	L/G PROX DET/& RELAYS SYS2/FLT/GND	83GB	331/V51

PANEL	SERVICE	IDENT.	LOCATION
133VU	L/G PROX DET/& RELAYS SYS2/GEAR DOWN &/ OVHD PNL/FLT/GND	1GB	331/V52
133VU	L/G PROX DET/& RELAYSSYS1/RELAYS &/ RETRACT/CTL	2GB	332/U51
133VU	L/GPROX DET/& RELAYS SYS1/GEAR DN &/ CTR PNL/POS IND	3GB	332/U53
133VU	L/G PROX DET/& RELAYS SYS1/FLT/GND	119GB	332/U52

(3)On panel 4VU :
- make certain that landing gear control lever is in **DOWN** position and prohibit its operation by displaying a warning notice.

(4)Between First Officer's and Third Occupant's seats :
- make certain that landing gear Free Fall extension control handle is in Normal position.

(5)Make certain that **PARKING BRAKE** control handle is in Normal (released) position.

(6)Energize the aircraft electrical network (Ref. 24-41-00, P. Block 301) :
- make certain that electronics racks ventilation is correct.

4. Test

A. Test of **ACCU PRESS** indicator on Brake Yellow Pressure Triple Indicator
Make certain that the **ACCU PRESS** indicator on the brake Yellow pressure triple indicator is operative :
- make certain that intermediate pressure between 0 and 2500 psi is indicated by the **ACCU PRESS** indicator on the brake Yellow pressure triple indicator,
- if the accumulator pressure is over 2500 psi, decrease this pressure by depressing and releasing the pedals several times with **BRK/A/SKID** switch in **ALTN/ON** position,
- pressurize Yellow braking accumulator by pressing **PARKING BRAKE/ACCU PRESS** pushbutton switch,
- make certain that the **ACCU PRESS** indicator on the brake Yellow pressure triple indicator indicates 3000 psi when the accumulator is pressurized.

NOTE : If the **ACCU PRESS** indicator on the brake Yellow pressure triple indicator is inoperative, stop this **AMM** procedure. No flight will be allowed without this indication.

B. Test of Anti Skid System from Maintenance Panel
(1)On panel 401VU :
- make certain that **BRK/A/SKID** switch is in **NORM/ON** position.

(2)Test

ACTION	RESULT
1. On maintenance panel 472VU - place **ANN LT** switch in **READ** position.	

ACTION	RESULT
2. On panel 11VU, on ECAM control panel - press WHEEL pushbutton switch	On panel 4VU, on right ECAM display unit - check that WHEEL page is displayed.
3. On ANTI SKID section of maintenance panel 471VU - press OK/PUSH TO TEST pushbutton switch for more than 10 seconds	On panel 471VU - OK legend comes on and goes off after 5 seconds On panel 4VU, on right ECAM display unit - The 8 green brake release symbols appear a few seconds after the OK pushbutton switch has been pressed. They disappear 10 seconds after this OK/PUSH TO TEST pushbutton switch has been released.
4. On panel 401VU - place BRK/A/SKID switch in ALTN/ON position.	
5. Perform test described in step 3.	Results are identical to those obtained with BRK/A/SKID switch in NORM/ON position.

NOTE : A protective circuit interrupts the test after 10 seconds in the event of OK/PUSH TO TEST pushbutton switch failure (jamming of pushbutton switch in pressed position).
If OK/PUSH TO TEST pushbutton switch is released before the 10 seconds have elapsed, the OK legend goes off. The 8 brake release symbols disappear 10 seconds after the OK/PUSH TO TEST pushbutton switch has been released.

C. Normal Braking Operational Test

(1)Install a pressure gage downstream of two Alternate braking servovalves on the brake unit bleeder (one on each landing gear).

(2)Pressurize Green hydraulic system using Green electric pumps (Ref. 29-21-00, P. Block 301).

(3)Pressurize Yellow hydraulic system using Green/Yellow transfer unit (Ref. 29-23-00, P. Block 301).

NOTE : In the following tests any pressure below 130 psi can be considered as zero pressure.

ACTION	RESULT
1. On panel 401VU - place BRK/A/SKID switch in NORM/ON position	On panel 4VU, on right ECAM display unit - no brake release symbols are displayed.

ACTION	RESULT
2. Fully depress Captain's pedals and hold depressed	Check that - pistons associated with Green system are extended (braking effective) - downstream of the Alternate servovalves, no pressure is displayed on the pressure gages - pistons associated with Yellow system are retracted.
3. On panel 401VU - place **BRK/A/SKID** switch in **ALTN/ON** position	Check that - pistons associated with Green system are retracted and pistons associated with Yellow system are extended (Green/Yellow transfer) - downstream of the Alternate servovalves, pressure is displayed on the pressure gages.
4. On panel 401VU - place **BRK/A/SKID** switch in **NORM/ON** position	Check that - pistons associated with Green system are extended and pistons associated with Yellow system are retracted (Green/Yellow transfer) - downstream of the Alternate servovalves, zero pressure is displayed on the pressure gages.
5. Release Captain's pedals.	

D. Operational Test of Alternate Braking with and without Anti Skid

ACTION	RESULT
1. On panel 401VU - place **BRK/A/SKID** switch in **ALTN/ON** position	On right **ECAM** display unit - no brake release symbol is displayed.
2. Fully depress Captain's left and right pedals	Check that - downstream of the Alternate servovalves, on the pressure gages pressure delivered to the brakes is 175 +10 -15 bars (2538 +145 -217 psi) - accumulator pressure is indicated on **ACCU PRESS** section of indicator - pistons associated with Yellow hydraulic system are in extended position (activated).

ACTION	RESULT
3. Release Captain's pedals	Check that - downstream of the Alternate servovalves, on the pressure gages zero pressure is displayed - pistons associated with Yellow hydraulic system are in retracted position.
4. Progressively press Captain's pedals	Check that - downstream of the Alternate servovalves, on the pressure gages pressure increases progressively with pedal load - pistons associated with Yellow hydraulic system are in extended position (activated).
5. Release pedals.	
6. On panel 401VU - place **BRK/A/SKID** switch in **ALTN/OFF** position	
7. Perform tests described in steps 2., 3., 4., 5. above	Results are identical to those obtained with **BRK/A/SKID** switch in **ALTN/ON** position.
8. On panel 401VU - place **BRK/A/SKID** switch in **NORM/ON** position.	

E. Close-up
(1)Shut down Green/Yellow transfer unit.
(2)Shut down Green electric pumps.
(3)Remove pressure gages.
(4)De-energize the aircraft electrical network (Ref. 24-41-00, P. Block 301).
(5)Remove warning notice.
(6)Restore system and aircraft to normal operating conditions.
(7)Make certain that working area is clean and clear of tools and miscellaneous items of equipment.

HYDRAULIC RESERVOIR (4300) - REMOVAL/INSTALLATION

WARNING : CHECK THAT THE LANDING GEAR GROUND SAFETIES INCLUDING WHEEL CHOCKS ARE IN POSITION.

1. Equipment and Materials

ITEM	DESIGNATION
A.	Wheel Chocks
B.	Access Platform 2.60 m (8 ft. 7 in.)
C.	Hydraulic Fluid Container
D.	Blanking Plugs/Caps
Referenced Procedures	
- 12-12-32, P. Block 1	Landing Gear Replenishing
- 32-43-00, P. Block 501	Alternate Braking with Anti Skid
- 32-43-00, P. Block 301	Alternate Braking with Anti Skid

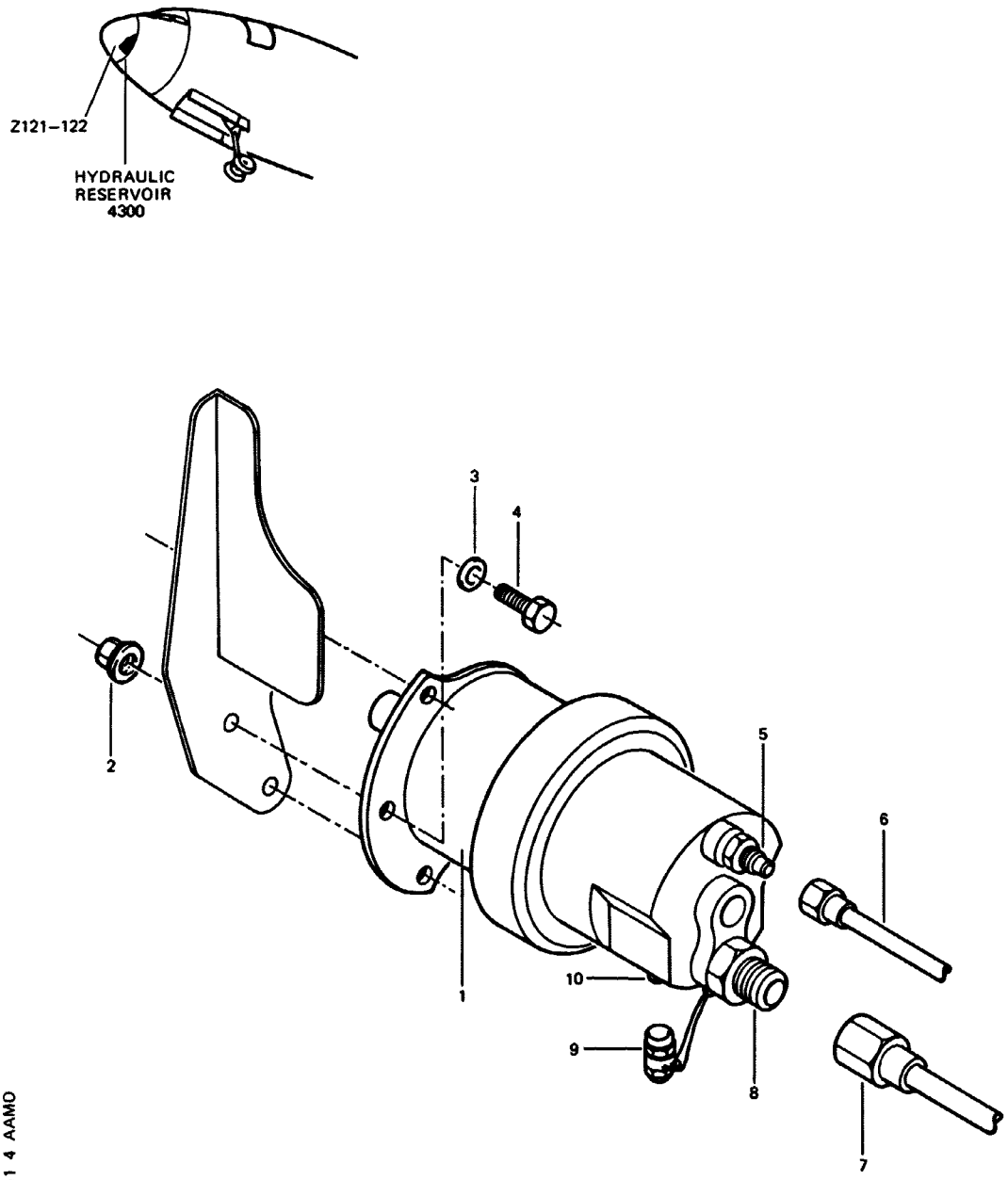
2. Procedure
(Ref. Fig. 401)

A. Job Set-Up
(1)Make certain that wheel chocks are in position.
(2)On panel 9VU
- make certain that **PARKING BRAKE** handle is in **NORMAL** released position.
(3)Position access platform.
(4)Open access door 811 and 132AZ
(5)Remove plug (9) from filling valve (10).
(6)Cut and remove lockwire open filling valve and drain reservoir using the hydraulic fluid container.
(7)Close and wirelock valve and install plug (9).
(8)Disconnect lines (7) and (6) and cap open line ends and reservoir unions (5) and (8).

B. Removal
(1)Loosen nuts (2), support reservoir (1) remove nuts, bolts (4) and washers (3).
(2)Remove reservoir.

C. Preparation of Replacement Component
NOTE : The replacement hydraulic reservoir is filled with aircraft system hydraulic fluid.
(1)Depreserve hydraulic reservoir by removing outer protective coverings.
(2)If replacement component is supplied without hydraulic connectors etc, recover the connectors installed on the removed component, clean and check them for correct condition and install on replacement component using new seals.

D. Installation
(1)Position and support reservoir, install bolts (4), washers (3) and nuts (2).



Brake Hydraulic Reservoir
Figure 401

(2)Remove cap from brake hydraulic reservoir bleed screw (5) and blanking plug from line (6), then connect line (6) to reservoir.
(3)Remove blanking plugs from line (7) end and reservoir union (8) and connect line to reservoir.
(4)Replenish the Alternate brake distribution dual valve 3301 control system (Ref. 12-12-32, P. Block 1).
(5)Bleed the Alternate brake distribution dual valve 3301 control system (Ref. 32-43-00, P. Block 301).

E. Test
Carry out operational test of Alternate braking with and without anti- skid (Ref. 32-43-00, P. Block 501).

F. Close-Up
(1)Make certain that working area is clean and clear of tools and miscellaneous items of equipment.
(2)Close access doors 811 and 132AZ.
(3)Remove access platform.

HYDRAULIC RESERVOIR (4300) - INSPECTION/CHECK

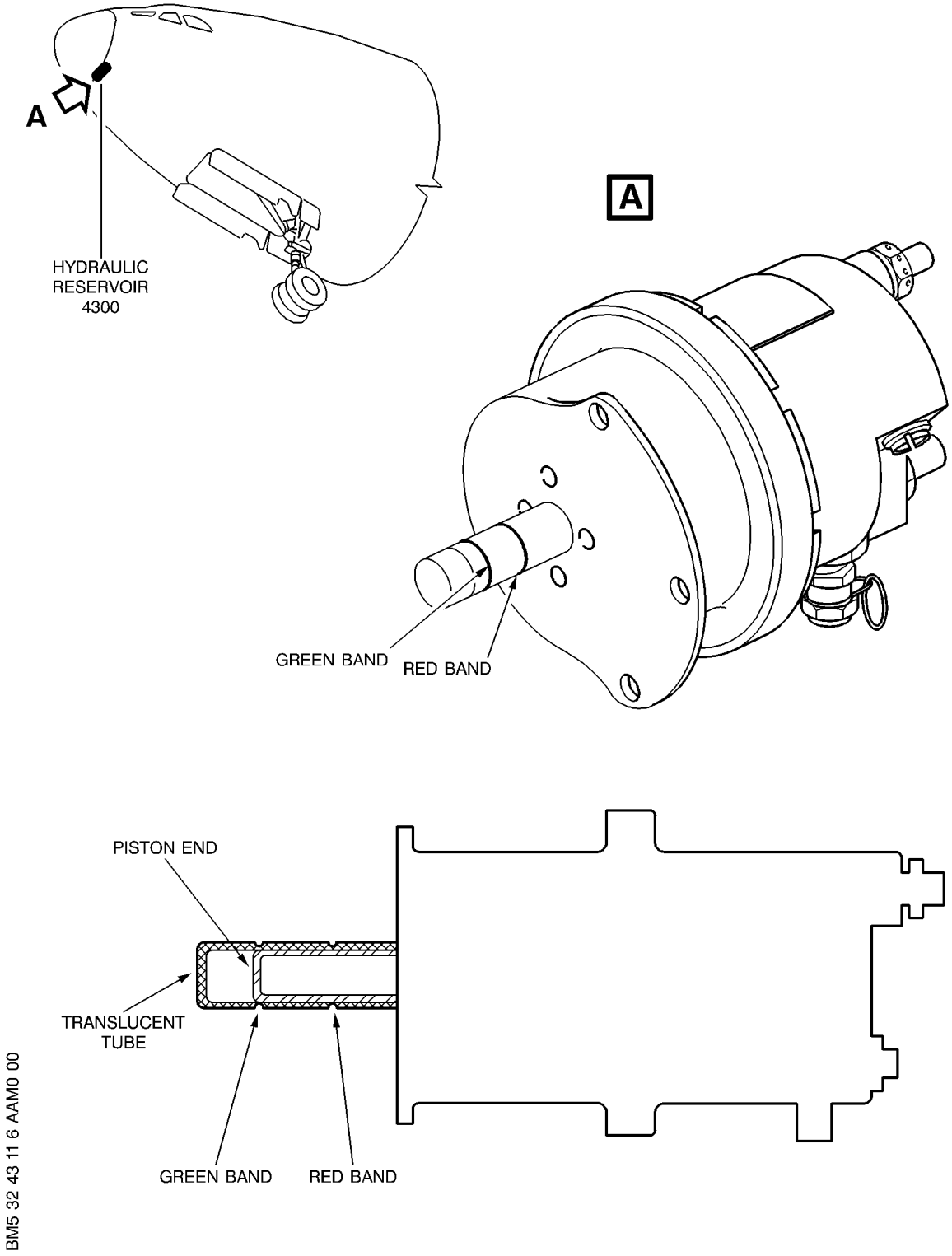
1. Reason for the Job
   To check fluid level of hydraulic reservoir.
2. Equipment and Materials

ITEM	DESIGNATION
A.	Warning Notice
B.	Wheel Chocks
C.	Access Platform 2.60 m (8 ft. 7 in.)
Referenced Procedures - 12-12-32, P. Block 1	Landing Gear Replenishing

3. Procedure
   (Ref. Fig. 601)
   A. Job Set-Up
      (1)In flight compartment, put a warning notice to tell persons not to operate brake pedals.
      (2)Make certain that wheel chocks are in position.
      (3)On mechanical center pedestal 9VU :
         - make certain that PARKING BRAKE control handle is in Normal (Released) position.
      (4)Position access platform.
      (5)Open access doors 811 and 132AZ.

   B. Visual Inspection
      (1)On fluid level indicator of reservoir, examine position of the piston end :
         (a)If piston end is aligned with green band or between red band and green band, the level is correct.
         (b)If piston end is aligned with or below red band, fill the reservoir (Ref. 12-12-32, P. Block 1).

   C. Close-up
      (1)Make certain that working area is clean and clear of tool(s) and miscellaneous items of equipment.
      (2)Close access doors 811 and 132AZ.
      (3)Remove access platform.
      (4)Remove warning notice.



Check of Fluid Level of Hydraulic Reservoir
Figure 601

MASTER CYLINDER (4301 - 4302) - REMOVAL/INSTALLATION

WARNING : CHECK THAT THE LANDING GEAR GROUND SAFETIES INCLUDING WHEEL CHOCKS ARE IN POSITION.

1. Equipment and Material

ITEM	DESIGNATION
A.	Wheel chocks
B.	Access Platform 2.60 m (8 ft. 7 in.)
C.	Hydraulic Fluid Container
D.	Blanking Plugs
Referenced Procedures	
- 12-12-32, P. Block 1	Replenishment of Alternate Brake Distribution Dual Valve Control System
- 32-43-00, P. Block 301	Alternate Braking with Anti Skid
- 32-43-00, P. Block 501	Alternate Braking with Anti Skid

2. Procedure

A. Job Set-Up
(1)Make certain that wheel chocks are in position.
(2)On panel 9VU
- make certain that PARKING BRAKE control handle is in Normal released position and prohibit its operation by displaying a warning notice on center pedestal in flight compartment

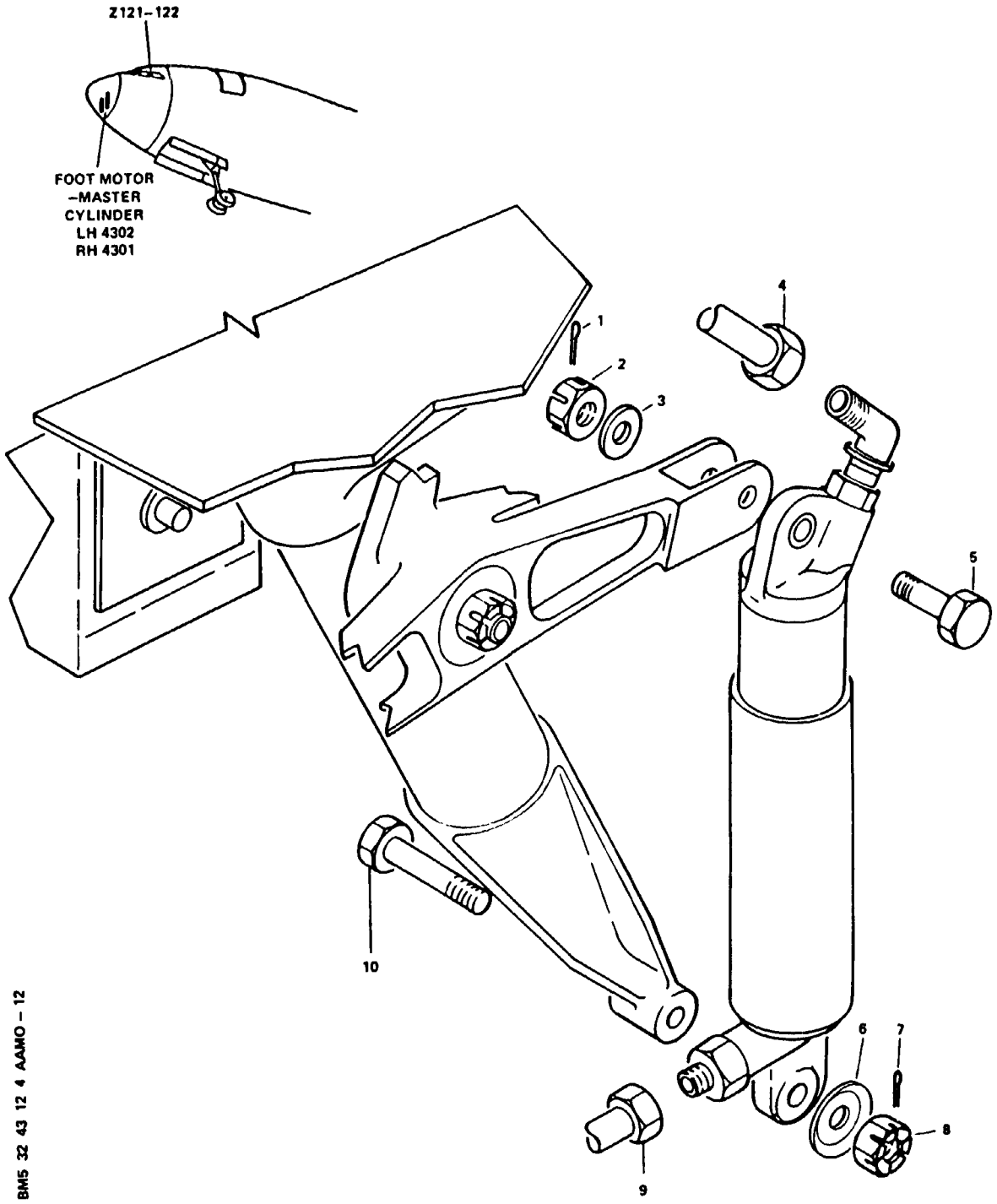
(3)In flight compartment
- display a warning notice prohibiting operation of brake pedals

(4)Position access platform at forward cargo compartment.
(5)Open access doors 811 and 132AZ.
(6)Remove the hydraulic reservoir 4300 filling valve plug. Cut and remove lockwire and open the valve. Drain the hydraulic reservoir, using hydraulic fluid container.

B. Removal (Ref. Fig. 401)
(1)Disconnect master cylinder supply line (4) and blank open line end.
(2)Disconnect line (9) and blank open line end.
(3)Remove cotter pin and nut (8), retain washer (6) and bolt (10).
(4)Remove cotter pin and nut (2), retain washer (3).
Support master cylinder and remove bolt (5).
(5)Remove master cylinder.

C. Preparation of Replacement Component
Depreserve master cylinder and check its condition.
NOTE : Master cylinder is filled with aircraft system hydraulic fluid (Ref. 20-31-00).

D. Installation (Ref. Fig. 401)
(1)Position master cylinder.
(2)Install bolt (5), with washer (3) and nut (2). Safety with cotter



Master Cylinder
Figure 401

pin (1).

(3)Install bolt (10), with washer (6) and nut (8). Safety with cotter pin (7).

(4)Remove blanking plug from line (9) end and connect to master cylinder.

(5)Remove blanking plug from supply line (4) end and connect to master cylinder.

R (6)Perform replenishing and bleeding of alternate brake distribution dual
R valve control system (Ref. 12-12-32, P. Block 1 or 32-43-00,
R P. Block 301).
R

E. Test

Carry out operational test of Alternate braking with and without anti-skid (Ref. 32-43-00, P. Block 501).

F. Close-Up

(1)Make certain that working area is clean and clear of tools and miscellaneous items of equipment.

(2)Close access doors 811 and 132AZ.

(3)Remove access platform.

ALTERNATE BRAKE DISTRIBUTION DUAL VALVE (3301) REMOVAL/INSTALLATION

R **WARNING** : CHECK THAT THE LANDING GEAR GROUND SAFETIES INCLUDING WHEEL CHOCKS ARE IN POSITION.

BEFORE APPLYING OR RELIEVING HYDRAULIC SYSTEM PRESSURE, MAKE CERTAIN THAT THE TRAVEL RANGES OF THE CONTROL SURFACES ARE CLEAR.

BEFORE PRESSURIZING HYDRAULIC SYSTEMS, CHECK THAT ALL CONTROLS ARE SET TO CORRESPOND WITH THE ACTUAL POSITION OF THE SERVICES THEY OPERATE.

BEFORE POWER IS SUPPLIED TO THE AIRCRAFT MAKE CERTAIN THAT ELECTRICAL CIRCUITS UPON WHICH WORK IS IN PROGRESS ARE ISOLATED.

BEFORE PRESSURIZING HYDRAULIC SYSTEMS MAKE CERTAIN THAT HYDRAULIC SYSTEM UNDER MAINTENANCE HAS BEEN ISOLATED.

1. Equipment and Materials

ITEM	DESIGNATION
A. 99A29001006000	Unit-Topping Up, Hydraulic Tank (Hand Operated)
B. 97A29102035000	Connector-Pressurizing, Hydraulic Tank
C. 97A29102062000	Connector-Depressurizing, Hydraulic Tank
D.	Wheel Chocks
E.	Circuit Breaker Safety clips
F.	Access Platform (2.60m) (8 ft. 7 in.)
G.	Blanking Plugs
H.	Warning Notices
J.	Safety Barriers
K.	Hydraulic Fluid Container
L. Material No. 11-002	Cleaning Agents (Ref. 20-31-00)
Referenced Procedures	
- 12-12-29, P. Block 1	Hydraulic Reservoir Replenishing
- 12-12-32, P. Block 1	LP Braking System
- 29-10-00, P. Block 301	Main Hydraulic Power-Pressurization/Depressurization
- 29-14-00, P. Block 301	Hydraulic Reservoir-Pressurization/Depressurization
- 32-12-11, P. Block 301	Main Gear Main Door (Ground Door(s) Opening)
- 32-43-00, P. Block 301	Alternate Braking with Anti Skid
- 32-43-00, P. Block 501	Alternate Braking with Anti Skid

2. Procedure

A. Job Set-Up
(1)Make certain that wheel chocks are in position.
(2)On panel 9VU
- place **PARKING BRAKE** control handle in Normal released position.

(3)On panel 4VU
- Make certain that landing gear control lever is in **DOWN** position and prohibit its operation by displaying a warning notice.

(4)Between First Officer's and 3rd Occupant's seats
- make certain that landing gear Free Fall extension control handle is in Normal position.

(5)Open, safety and tag the following circuit breakers

PANEL	SERVICE	IDENT.	LOCATION
133VU	HYDRAULIC/ELEC/PUMPS/WARN	4GE	331/V60
133VU	HYDRAULIC/ACCU PRESS/CTL/CARGO DOOR/PUMP	7GX	333/T51

(6)Position access platform.

(7)Position safety barriers prohibiting access to main gear door travel ranges
WARNING : MAKE CERTAIN THAT THE DOOR TRAVEL RANGES ARE CLEAR.

(8)Open main gear LH door (Ref. 32-12-11, P. Block 301).
WARNING : WHEN DOORS ARE OPEN MAKE CERTAIN THAT SAFETY COLLARS ARE POSITIONED ON DOOR ACTUATING CYLINDERS.

(9)Depressurize Yellow hydraulic reservoir (Ref. 29-14-00, P. Block 301) and prohibit its pressurization by displaying a warning notice :
- on panel 429VU to prohibit APU starting
- on reservoir pressurization connector

(10)Depressurize Yellow hydraulic system (Ref. 29-10-00, P. Block 301) and prohibit its pressurization by displaying a warning notice :
- on Yellow hydraulic system ground connectors
- on panel 427VU to prohibit energization of Yellow **PWR TRANSF** unit (RH PTU pushbutton switch)

(11)Depressurize braking accumulators 3125 and 3126 by operating pressure relief valve 3067 located on pressure manifold 3060.

(12)Remove cap from reservoir 4300 filler valve. Cut lockwire and open the valve.
Drain hydraulic fluid from reservoir into recovery pan.

(13)Position hydraulic fluid container.

(14)Display a warning notice to prohibit operation of Captain's and First Officer's brake pedals.

(Ref. Fig. 401)

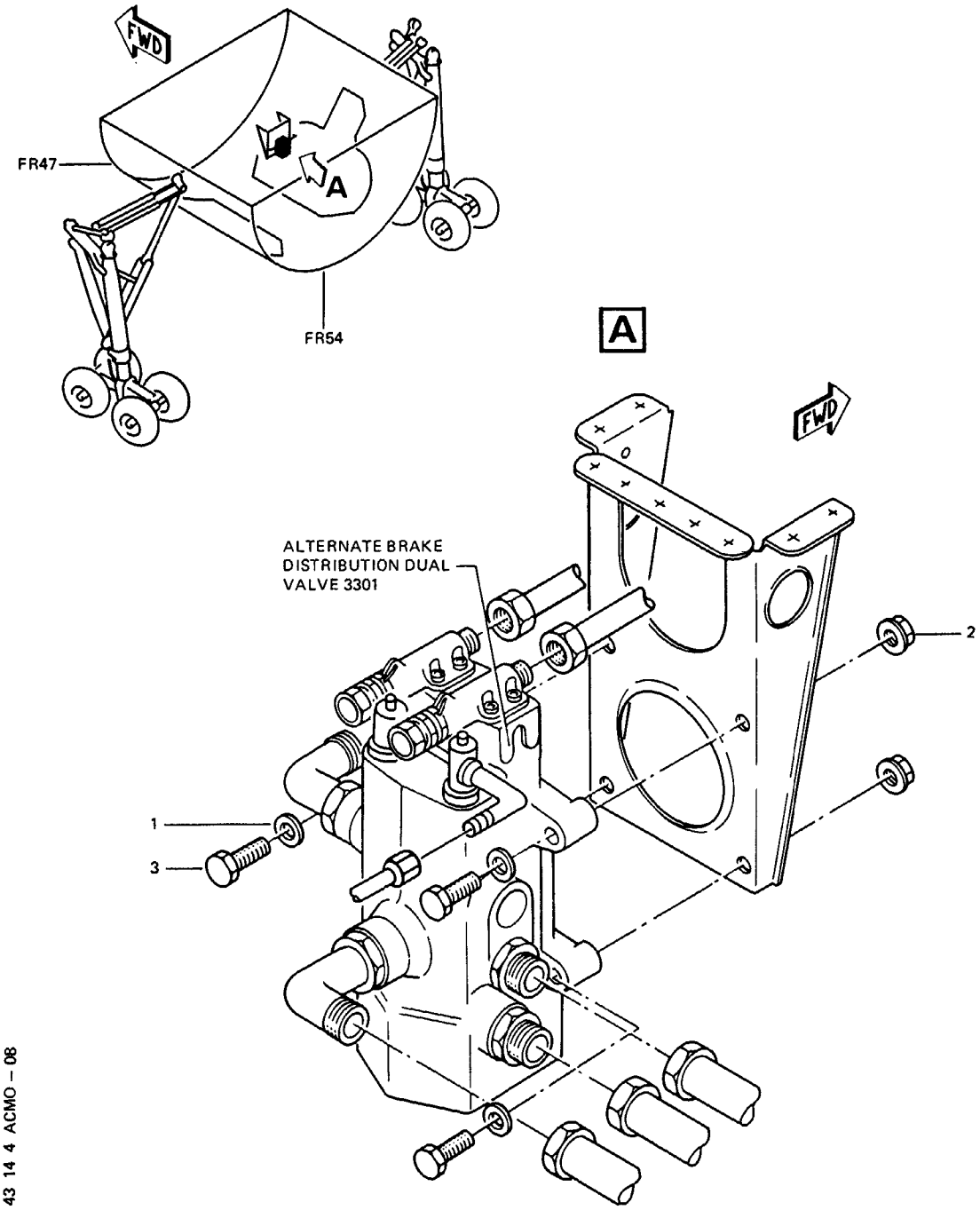
**ON A/C ALL

Post SB 32-2113 For A/C ALL

(Ref. Fig. 402)

**ON A/C ALL

(1)Disconnect hydraulic lines previously marked for identification purposes, blank line ends.



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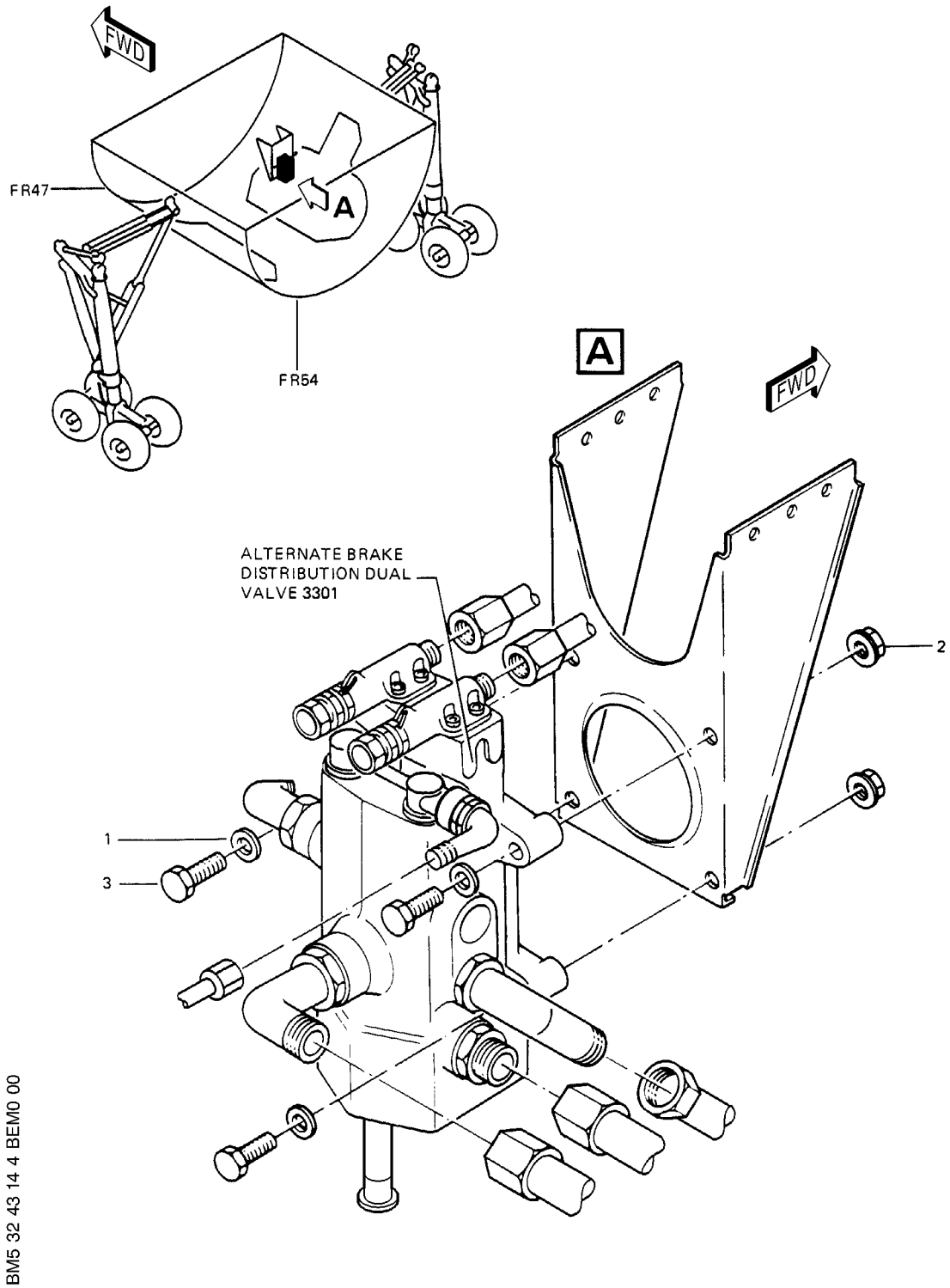
Alternate Brake Distribution Dual Valve
Figure 401



Alternate Brake Distribution Dual Valve
Figure 402

R

(2)Remove Alternate brake distribution dual valve.
(a)Remove nuts (2), and screws (3) equipped with washers (1)
(b)Remove Alternate brake distribution dual valve.

C. Preparation of replacement component
NOTE : The replacement Alternate brake distribution dual valve is filled with aircraft system hydraulic fluid (Ref. 20-31-00, P. Block 1)
(1)Depreserve the replacement component and remove external protective coverings.
(2)Clean the replacement unit with material No. 11-002 and dry with filtered compressed air.
(3)If replacement component is supplied without hydraulic connectors, remove connectors from removed component, clean and check them for correct condition and install in replacement component together with new seals.

D. Installation
(1)Offer up Alternate brake distribution dual valve.
(2)Install screws (3), equipped with washers (1) and nuts (2).
(3)Remove blanking plugs from hydraulic lines and connect the lines.
R (4)Perform replenishing and bleeding of Alternate brake distribution
R valve control system (Ref. 12-12-32, P. Block 1, Para. 2 and
R Ref. 32-43-00, P. Block 301, Para. 2).
(5)Not applicable.

E. Test
(1)Carry out an operational test of Alternate braking system (with and without anti skid) (Ref. 32-43-00, P. Block 501).
Carefully check Alternate distribution dual valve for leakage, when pressurizing system and upon completion of tests.

F. Close-Up
(1)Make certain that working area is clean and clear of tools and miscellaneous items of equipment.
(2)Remove hydraulic fluid container.
(3)Remove safety clips and tags and close circuit breakers 4GE, 7GX.
(4)Pressurize hydraulic reservoirs (Ref. 29-14-00, P. Block 301).
WARNING : MAKE CERTAIN THAT DOOR TRAVEL RANGES ARE CLEAR.
(5)Close main landing gear door (Ref. 32-12-11, P. Block 301).
(6)Replenish hydraulic reservoirs as necessary (Ref. 12-12-29, P. Block 1)
(7)Remove warning notice
(8)Close access doors, remove access platform and safety barriers
(9)Remove all ground handling and maintenance equipment standard and special tools, together with ground power and replenishing equipment, all access equipment and miscellaneous items.

WARNING : CHECK THAT THE LANDING GEAR GROUND SAFETIES INCLUDING WHEEL CHOCKS ARE IN POSITION.

1. Not Applicable

**ON A/C ALL

Post SB 32-2113 For A/C ALL

2. Draining of Alternate Brake Distribution Dual Valve (3301)

A. Reason for the Job
To drain water accumulation in the drain tube of the brake distribution dual valve (BDDV).

B. Equipment and Materials

ITEM	DESIGNATION
(1)	Access Platform 2.60 m (8 ft. 7 in.)
(2)	Wheel Chocks
(3)	Safety Barriers
R (4)	NORMALCLAMP COBRA plier
Referenced Procedure	
- 32-12-11, P. Block 301	Main Gear Main Door (Ground Door(s) Opening)

C. Procedure
(1)Job set-up
(a)Make certain that wheel chocks are in position.
(b)Position safety barriers prohibiting access to main gear door travel ranges.
(c)Position access platform.
WARNING : MAKE CERTAIN THAT THE DOOR TRAVEL RANGES ARE CLEAR.
(d)Open left main gear door (Ref. 32-12-11, P. Block 301).
WARNING : WHEN DOORS ARE OPEN, MAKE CERTAIN THAT SAFETY COLLARS ARE POSITIONED ON DOOR ACTUATING CYLINDERS.
(2)Draining of Alternate Brake Distribution Dual Valve (3301)

**ON A/C ALL

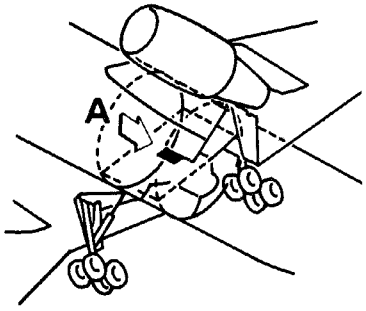
Post SB 32-2113 For A/C ALL

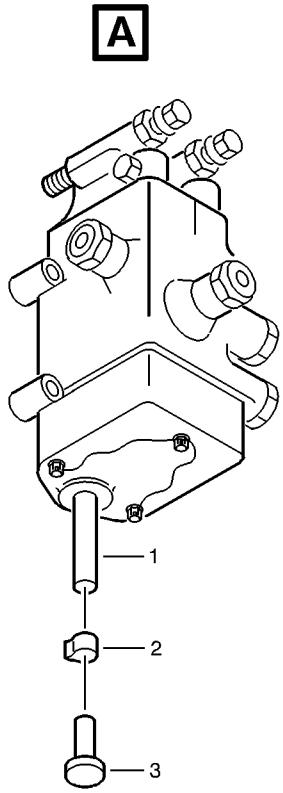
(Ref. Fig. 601)

**ON A/C ALL

Post SB 32-2113 For A/C ALL

(a)Put a container under drain hose (1).
R (b)Remove clamp (2) with NORMACLAMP COBRA plier and plug (3).
(c)Drain contents of hose into container.
(d)If water is found in drain hose (1), do the detailed visual inspection





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Draining of Alternate Brake Distribution Dual Valve
Figure 601

of alternate brake distribution dual valve (3301) for corrosion.

R (e)Install clamp (2) with NORMACLAMP COBRA plier and plug (3) and tighten
R clamp.

(3)Close-up

(a)Make certain that working area is clean and clear of tools and miscellaneous items of equipment.

WARNING : MAKE CERTAIN THAT THE DOOR TRAVEL RANGES ARE CLEAR.

(b)Close main landing gear doors (Ref. 32-12-11, P. Block 301).

(c)Remove safety barriers.

(d)Remove access platform.

(e)Remove wheel chocks.

R **ON A/C ALL

R Post SB 32-2113 For A/C ALL

3. Detailed Visual Inspection of Alternate Brake Distribution Dual Valve (3301) for corrosion

A. Reason for the Job
Self-explanatory

B. Equipment and Materials

ITEM	DESIGNATION
(1)	Access Platform 2.60 m (8 ft. 7 in.)
(2)	Wheel Chocks
(3)	Safety Barriers
(4)	Lockwire - Corrosion Resistant Steel Dia. 0.5 mm (0.019 in.)
(5)Material No. 04-011	Common Grease (Ref. 20-31-00)
Referenced Procedure - 32-12-11, P. Block 301	Main Gear Main Door (Ground Door(s) Opening)

C. Procedure
(1)Job set-up
(a)Make certain that wheel chocks are in position.
(b)Position safety barriers prohibiting access to main gear door travel ranges.
(c)Position access platform.
WARNING : MAKE CERTAIN THAT THE DOOR TRAVEL RANGES ARE CLEAR.
(d)Open left main gear door (Ref. 32-12-11, P. Block 301).
WARNING : WHEN DOORS ARE OPEN, MAKE CERTAIN THAT SAFETY COLLARS ARE POSITIONED ON DOOR ACTUATING CYLINDERS.
(2)Visual inspection of Alternate Brake Distribution Dual Valve (3301)

R **ON A/C ALL

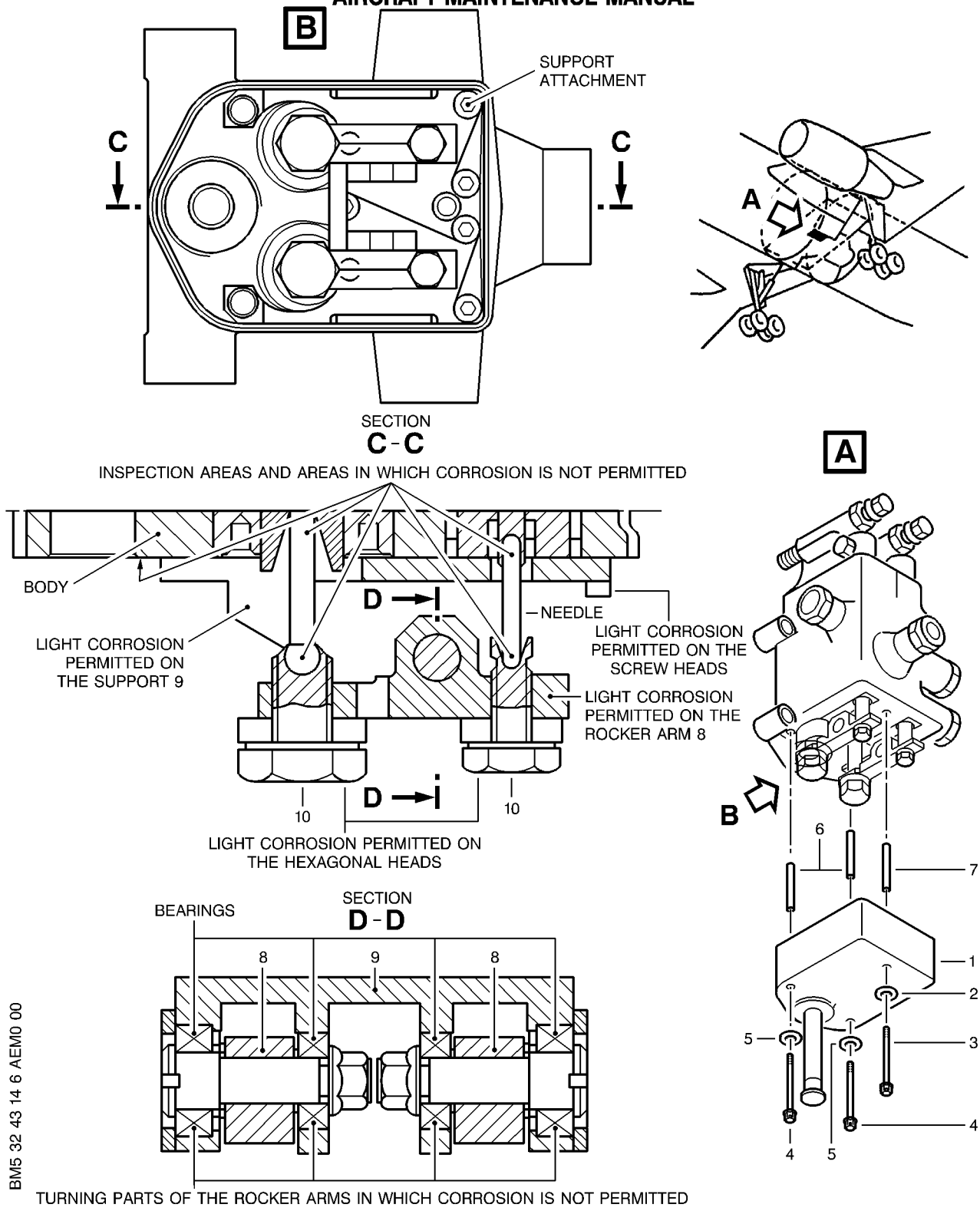
R Post SB 32-2113 For A/C ALL

(Ref. Fig. 602)

R **ON A/C ALL

R Post SB 32-2113 For A/C ALL

(a)Cut and discard safety wire
(b)Remove screws (3) and (4) and washers (2) and (5)



Inspection for Corrosion
Figure 602

(c)Remove cover (1) and spacers (6) and (7)
(d)With a magnifying mirror, inspect brake distribution dual valve for corrosion.
(e)No corrosion is permitted on :
- bearing and turning parts of rocker arms (8)
- needles and seats
- spherical head rod assemblies.
If corrosion is found in these areas, replace brake distribution dual valve.
(f)If no corrosion or light corrosion is found on :
- support (9)
- rocker arm (8)
- hexagonal heads of screws (10).
Lubricate these parts as follows
(g)Lubrication
With a thin brush, and common grease (Material No. 04-011) lubricate all around the two rocker arms, the spherical head rod assemblies, the support, the needles, the hexagonal screws and the turning parts of the rocker arms. Carefully remove excess grease.
(h)Put spacers (6) and (7) in position in cover (1).
(j)Install cover (1) with screws (3) and (4) equipped with washers (2) and (5) and spacers (6) and (7).
NOTE : The spacers must stay in position in the cover.
(k)TORQUE to between 0.3 and 0.4 m.daN (26.54 and 35.39 lbf.in).
(f)Safety screws with lockwire.

(3)Close-up
(a)Make certain that working area is clean and clear of tools and miscellaneous items of equipment.
WARNING : MAKE CERTAIN THAT THE DOOR TRAVEL RANGES ARE CLEAR.
(b)Close main landing gear doors (Ref. 32-12-11, P. Block 301).
(c)Remove safety barriers.
(d)Remove access platform.
(e)Remove wheel chocks.

ALTERNATE BRAKE YELLOW MANIFOLD (3312-3313) - REMOVAL/INSTALLATION

WARNING : CHECK THAT THE LANDING GEAR GROUND SAFETIES INCLUDING WHEEL CHOCKS ARE IN POSITION.

BEFORE APPLYING OR RELIEVING HYDRAULIC SYSTEM PRESSURE, MAKE CERTAIN THAT THE TRAVEL RANGES OF THE CONTROL SURFACES ARE CLEAR.

BEFORE PRESSURIZING HYDRAULIC SYSTEMS, CHECK THAT ALL CONTROLS ARE SET TO CORRESPOND WITH THE ACTUAL POSITION OF THE SERVICES THEY OPERATE.

BEFORE POWER IS SUPPLIED TO THE AIRCRAFT MAKE CERTAIN THAT ELECTRICAL CIRCUITS UPON WHICH WORK IS IN PROGRESS ARE ISOLATED.

BEFORE PRESSURIZING HYDRAULIC SYSTEMS MAKE CERTAIN THAT HYDRAULIC SYSTEM UNDER MAINTENANCE HAS BEEN ISOLATED.

1. Equipment and Materials

ITEM	DESIGNATION
A.	Wheel Chocks
B.	Circuit Breaker Safety clips
C.	Access Platform (2.60m) (8 ft. 7 in.)
D.	Blanking Plugs
E.	Warning Notices
F.	Safety Barriers
G.	Hydraulic Fluid Container
H. Material No. 11-002	Cleaning Agents (Ref. 20-31-00)
Referenced Procedures	
- 12-12-29, P. Block 1	Hydraulic Reservoir Replenishing
- 29-10-00, P. Block 301	Main Hydraulic Power-Pressurization/ Depressurization
- 29-14-00, P. Block 301	Hydraulic Reservoir-Pressurization/ Depressurization
- 32-12-11, P. Block 301	Main Gear Main Door (Ground Door(s) Opening)
- 32-42-36, P. Block 401	Safety Valve
- 32-42-45, P. Block 401	Brake Return Accumulator
- 32-42-48, P. Block 401	Servovalve
- 32-43-00, P. Block 501	Alternate Braking with and without Anti Skid

2. Procedure

A. Job Set-Up
(1)Make certain that wheel chocks are in position.
(2)On panel 9VU
- place **PARKING BRAKE** control handle in Normal released position.
(3)On panel 4VU

- make certain that landing gear control lever is in **DOWN** position and prohibit its operation by displaying a warning notice.

(4)Between First Officer's and 3rd Occupant's seats
- make certain that landing gear Free Fall extension control handle is in Normal position.

(5)Open, safety and tag the following circuit breakers

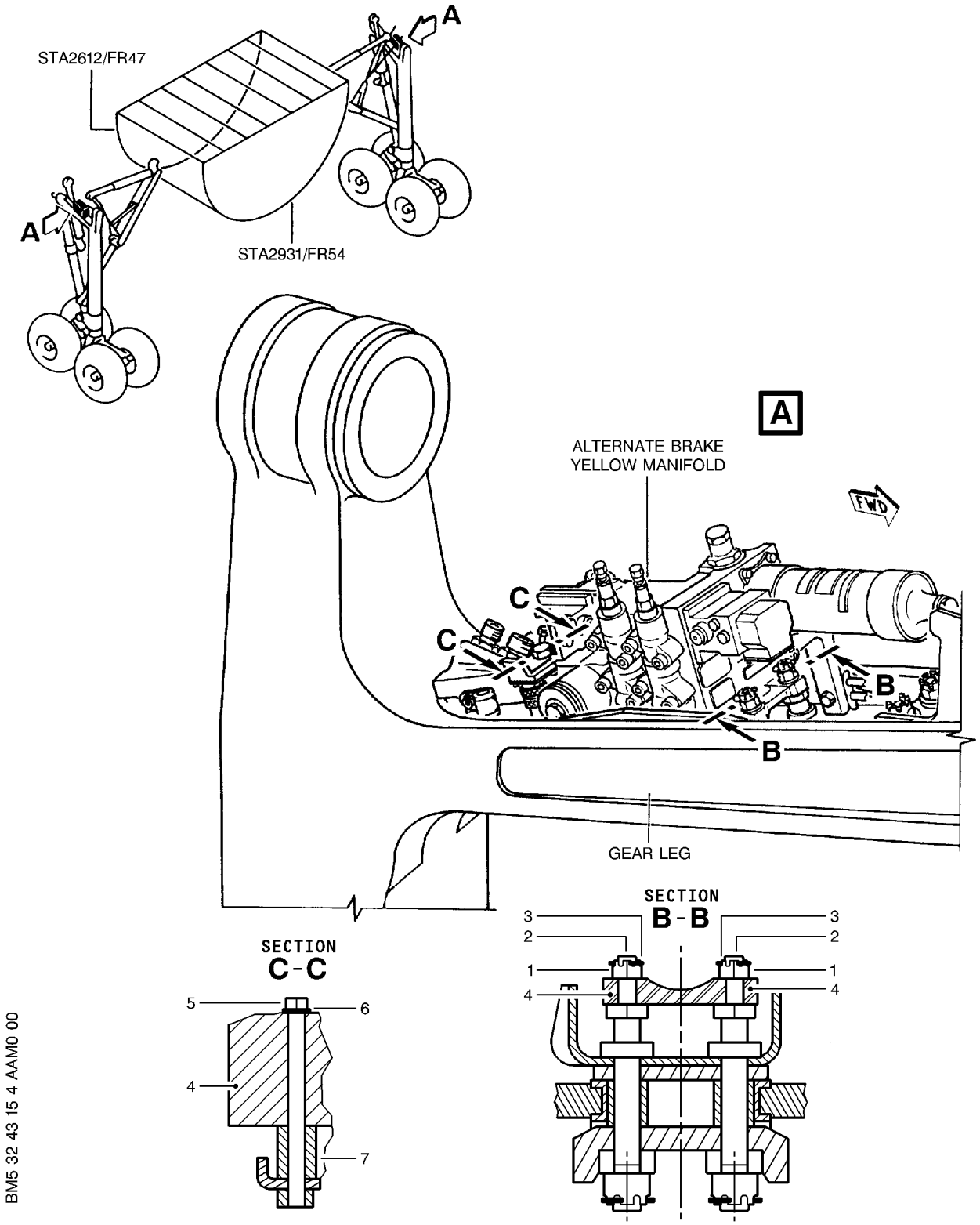
	PANEL	SERVICE	IDENT.	LOCATION
	133VU	HYDRAULIC/ELEC/PUMPS/WARN	4GE	331/V60
R	133VU	HYDRAULIC/ACCU PRESS/CTL &/CARGO DOOR/PUMP	7GX	333/T51

(6)Position access platform.
(7)Position safety barriers prohibiting access to main gear door travel ranges.
WARNING : MAKE CERTAIN THAT THE DOOR TRAVEL RANGES ARE CLEAR.
(8)Open main gear LH door (Ref. 32-12-11, P. Block 301).
WARNING : WHEN DOORS ARE OPEN MAKE CERTAIN THAT SAFETY COLLARS ARE POSITIONED ON DOOR ACTUATING CYLINDERS.
(9)Depressurize Yellow hydraulic reservoir (Ref. 29-14-00, P. Block 301) and prohibit its pressurization by displaying a warning notice :
- on panel 429VU to prohibit APU starting,
- on reservoir pressurization connector.
(10)Depressurize Yellow hydraulic system (Ref. 29-10-00, P. Block 301) and prohibit its pressurization by displaying a warning notice :
- on Yellow hydraulic system ground connectors,
- on panel 427VU to prohibit energization of Yellow PWR TRANSF unit (RH PTU pushbutton switch).
(11)Depressurize braking accumulators 3125 and 3126 by operating pressure relief valve 3067 located on pressure manifold 3060.
(12)Position hydraulic fluid container.

B. Removal
(Ref. Fig. 401)
(1)Remove safety valves (Ref. 32-42-36, P. Block 401).
(2)Remove servovalve (Ref. 32-42-48, P. Block 401).
(3)Remove brake return accumulator (Ref. 32-42-45, P. Block 401).
(4)Remove brake Yellow manifold
(a)Disconnect the hydraulic lines and blank off the union and hydraulic connections.
(b)Remove cotter pins (3), nuts (2) and washers (1).
(c)Remove bolt (5) and washer (6).
(d)Remove brake manifold (4) and retain spacer (7).

C. Preparation of replacement component
(1)Depreserve replacement manifold.
(2)Clean safety valve, servovalve accumulator, and manifold interface with Cleaning Agent (Material No. 11-002), and dry with filtered compressed air.

D. Installation



Alternate Brake Yellow Manifold
Figure 401

(1)Position spacer (7) and install brake manifold (4).
(2)Install washer (6) and bolt (5).
(3)Install washers (1) and nuts (2).
(4)TORQUE nuts (2) to between 1.8 to 2.1 mdaN (159 to 186 lbf.in.).
(5)TORQUE bolt (5) to between 1.4 to 1.7 mdaN (124 to 150 lbf.in.).
(6)Install new cotter pins (3).
(7)Remove blanking plugs and connect hydraulic lines.
NOTE : For rigid lines, hand tighten, then tighten by 1/6 turn.
(8)Install servovalve (Ref. 32-42-48, P. Block 401).
(9)Install brake return accumulator (Ref. 32-42-45, P. Block 401).
(10)Install safety valve (Ref. 32-42-36, P. Block 401).

E. Test
(1)Carry out an operational test of alternate braking system (with and without anti skid) (Ref. 32-43-00, P. Block 501).
(2)Carefully check brake manifold for leakage when pressurizing system and upon completion of test.

F. Close-Up
(1)Make certain that working area is clean and clear of tools and miscellaneous items of equipment.
(2)Remove hydraulic fluid container.
(3)Remove safety clips and tags and close circuit breakers 4GE, 7GX.
(4)Pressurize hydraulic reservoirs (Ref. 29-14-00, P. Block 301).
WARNING : MAKE CERTAIN THAT DOOR TRAVEL RANGES ARE CLEAR.
(5)Close main landing gear door (Ref. 32-12-11, P. Block 301).
(6)Replenish hydraulic reservoirs as necessary (Ref. 12-12-29, P. Block 1).
(7)Remove warning notice.
(8)Close access doors, remove access platform and safety barriers.
(9)Remove all ground handling and maintenance equipment standard and special tools, together with ground power and replenishing equipment, all access equipment and miscellaneous items.

ALTERNATE BRAKING WITHOUT ANTI SKID (ALTN/OFF)
DESCRIPTION AND OPERATION

1. General

The **ALTN/OFF** mode differs from **ALTN/ON** mode in that there is no anti skid regulation, deactivated either electrically (**BRK/A/SKID** switch in **ALTN/OFF** position or power supply failure) or hydraulically if the brakes are supplied by the brake Yellow power accumulators only (irrespective of **BRK/A/SKID** switch position). Hydraulic switching between the Yellow high pressure system and the accumulators is automatic and reversible.

The accumulators, the pressure of which is displayed on the triple pressure indicator, can be recharged by pressing the **ACCU PRESS** pushbutton switch controlling the Yellow electric pump.

The accumulators are dimensioned to supply at least seven full brake applications.

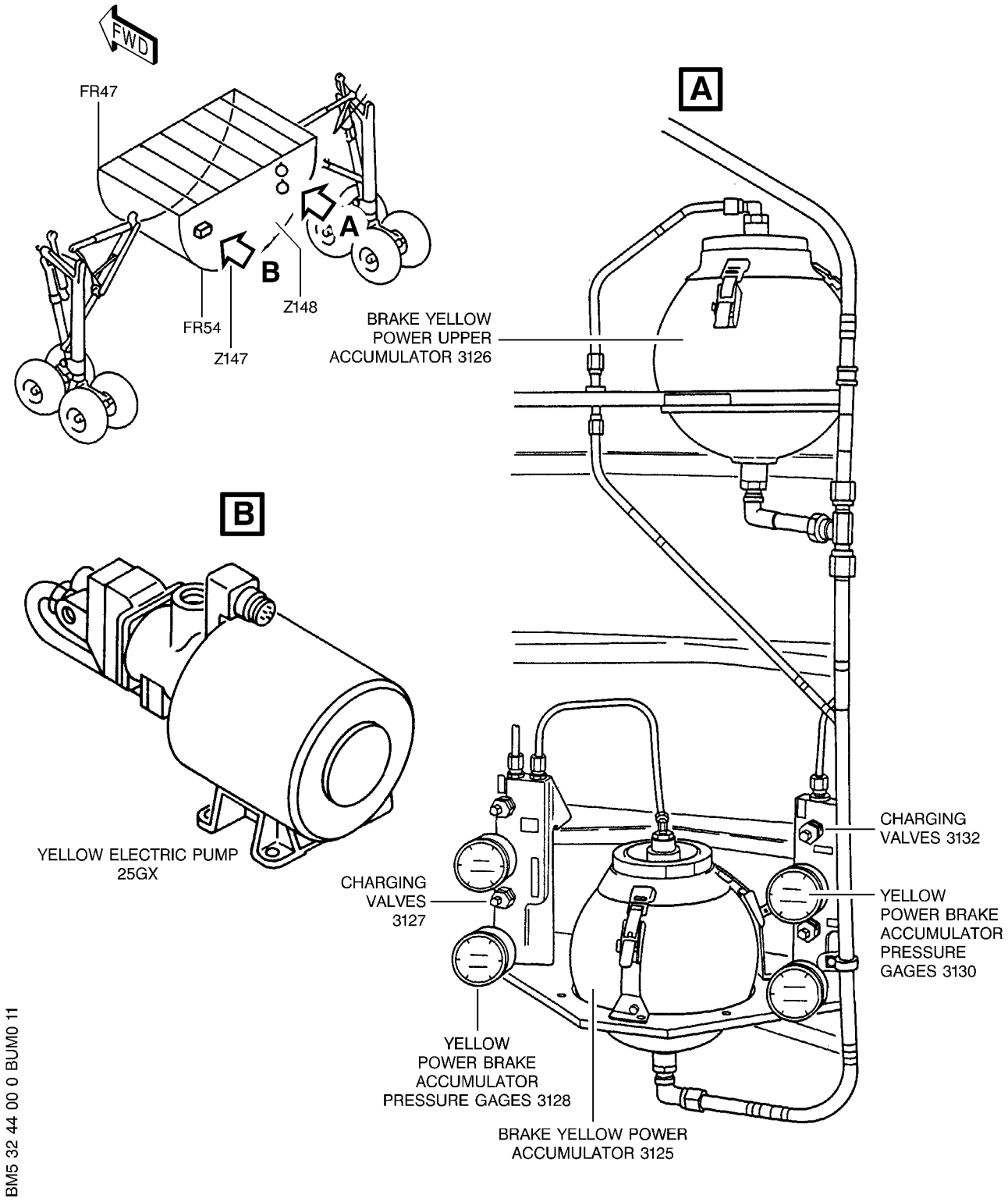
This braking mode uses the second set of pistons in the brake units.

2. Component Location

(Ref. Fig. 001)
(Ref. Fig. 002)
(Ref. Fig. 003)
(Ref. Fig. 004)

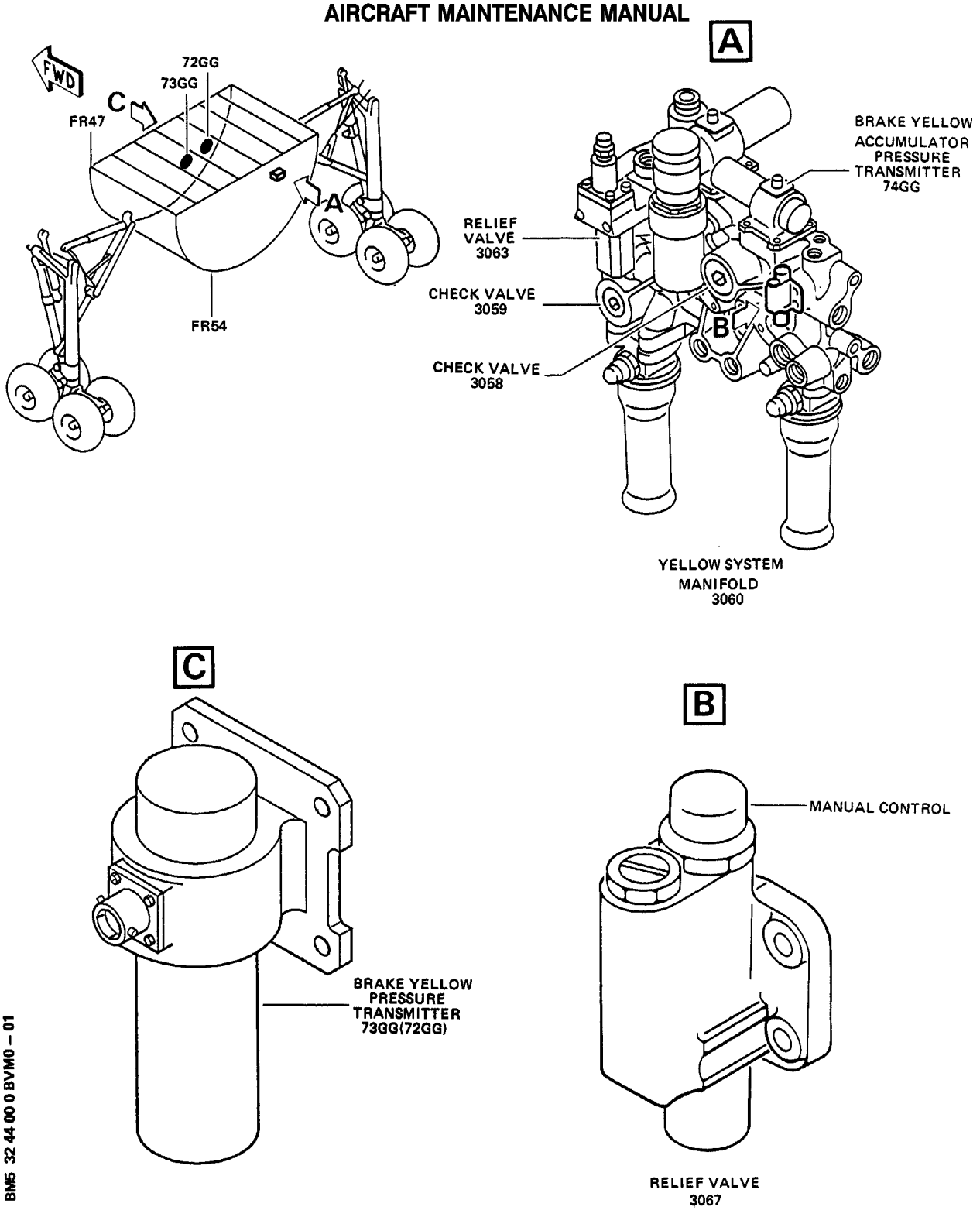
	FIN	FUNCTIONAL DESIGNATION	PANEL	ZONE	ACCESS DOOR	ATA REF.
	4300	HYD RESERVOIR-BRK CTL (Ref. 32-43-00)		122		
	4301	MASTER CYL-BRK CTL, R (Ref. 32-43-00)		122		
	4302	MASTER CYL-BRK CTL, L (Ref. 32-43-00)		122		
	1300	SELECTOR-BRK AUTOMATIC (Ref. 32-43-00)		148		
	3058	CHECK VALVE-BRK ACCU PRESS YELLOW		148		
	3059	CHECK VALVE-BRK ACCU PRESS YELLOW		148		
	3060	MANIFOLD-YELLOW SYSTEM		148		
	3063	RELIEF VALVE-YELLOW PUMP DELIVERY		148		
	3067	RELIEF VALVE-BRK YELLOW PRESS		148		
	3125	ACCU-BRK YELLOW POWER		148		32-44-11
	3126	ACCU-BRK YELLOW POWER		148		32-44-11
R R	3127	CHARGING VALVE-Y PWR BRK ACCU		148		32-44-14
R	3128	PRESSURE GAGE-Y PWR BRK ACCU		148		32-44-14
R	3130	PRESSURE GAGE-Y PWR BRK ACCU		148		32-44-14
R R	3132	CHARGING VALVE-Y PWR BRK ACCU		148		32-44-14
	3294	SHUTTLE VALVE-BRK YELLOW PRESS DUAL (Ref. 32-43-00)		147		
	3301	VALVE-ALTN BRK DISTR DUAL		147		

FIN	FUNCTIONAL DESIGNATION	PANEL	ZONE	ACCESS DOOR	ATA REF.
	(Ref. 32-43-00)				
3312	MANIFOLD-SERVOVALVE, L/R		731/		
3313	(Ref. 32-43-00)		741		
3324	SAFETY VALVE-ALTN		731/ 741		
3325	BRK, WHEEL 1/2/3/4 (Ref. 32-43-00)				
3328	SAFETY VALVE-ALTN		731/ 741		
3329	BRK, WHEEL 5/6/7/8 (Ref. 32-43-00)				
3346	ACCU-ALTN BRK RETURN, L/R		731/		
3347	(Ref. 32-43-00)		741		
71GG	IND-BRK YELLOW PRESS TRIPLE	4VU	211		
72GG	XMTR-BRK YELLOW PRESS, R		147		
73GG	XMTR-BRK YELLOW PRESS, L		148		
74GG	XMTR-BRK YELLOW ACCU PRESS		148		
96GG	SWITCH-BRK/A/SKID	401VU	211		
8GX	PUSHBUTTON SWITCH-PARKING BRAKE/ACCU PRESS		211		
25GX	ELEC PUMP-YELLOW		148		



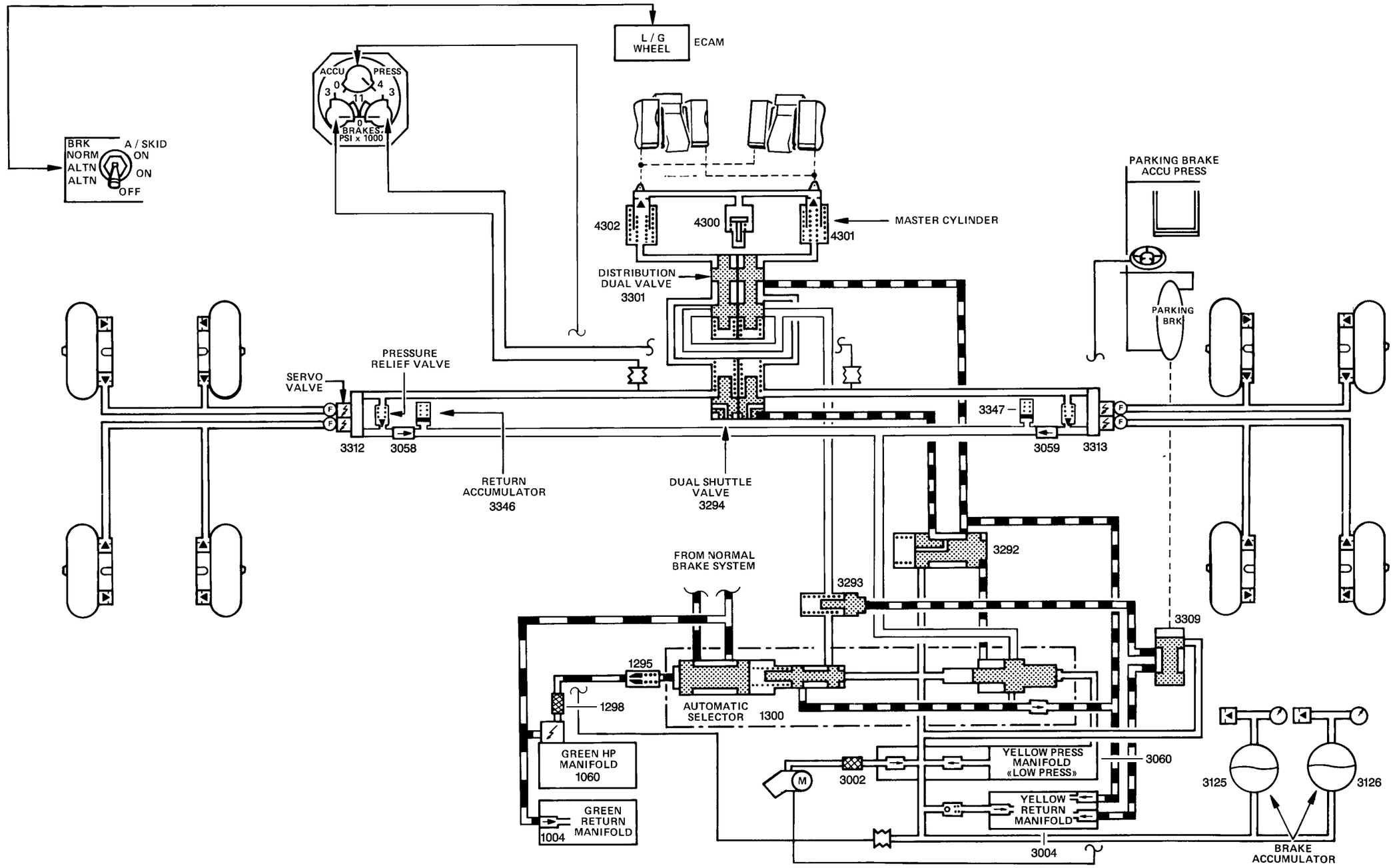
Hydraulic Components - Zone 147/148
Figure 001

R



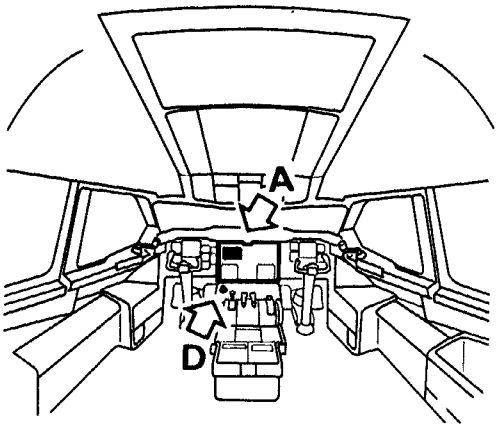
Hydraulic Components - Zone 148
Figure 002

R

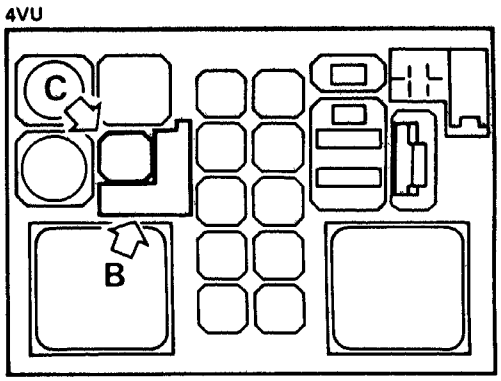


BM5 32 44 00 0 BCM0 01

R Alternate Braking Without Anti skid - Schematic
Figure 003



A

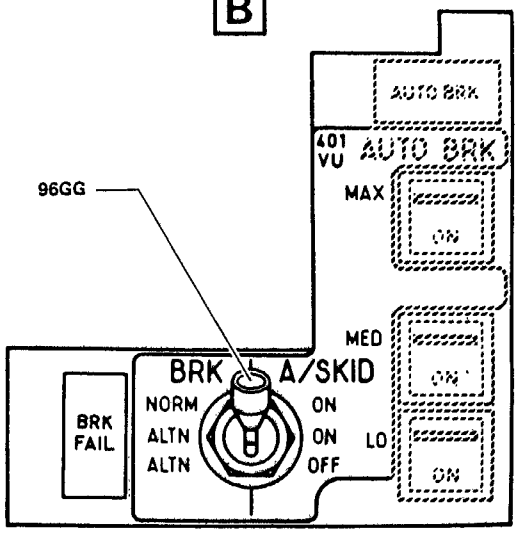


4VU

D

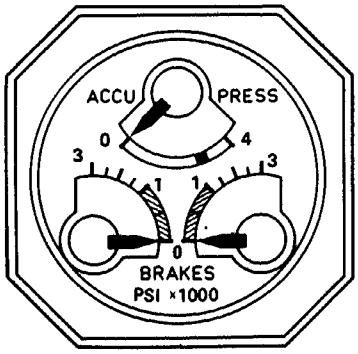
PARKING BRAKE /ACCU PRESS
PUSH BUTTON SWITCH
8GX

B



401 VU

C



71GG
BRAKE YELLOW PRESSURE
TRIPLE INDICATOR

BM5 32 44 00 0 CTMO – 14

Control and Indicating Components - Flight Compartment
Figure 004

3. Component Description

A. Brake Yellow Power Accumulators and Brake Yellow Pressure Relief Valve

(1)Accumulators

(Ref. Fig. 005)

The two spherical accumulators are of the bladder type charged with nitrogen.

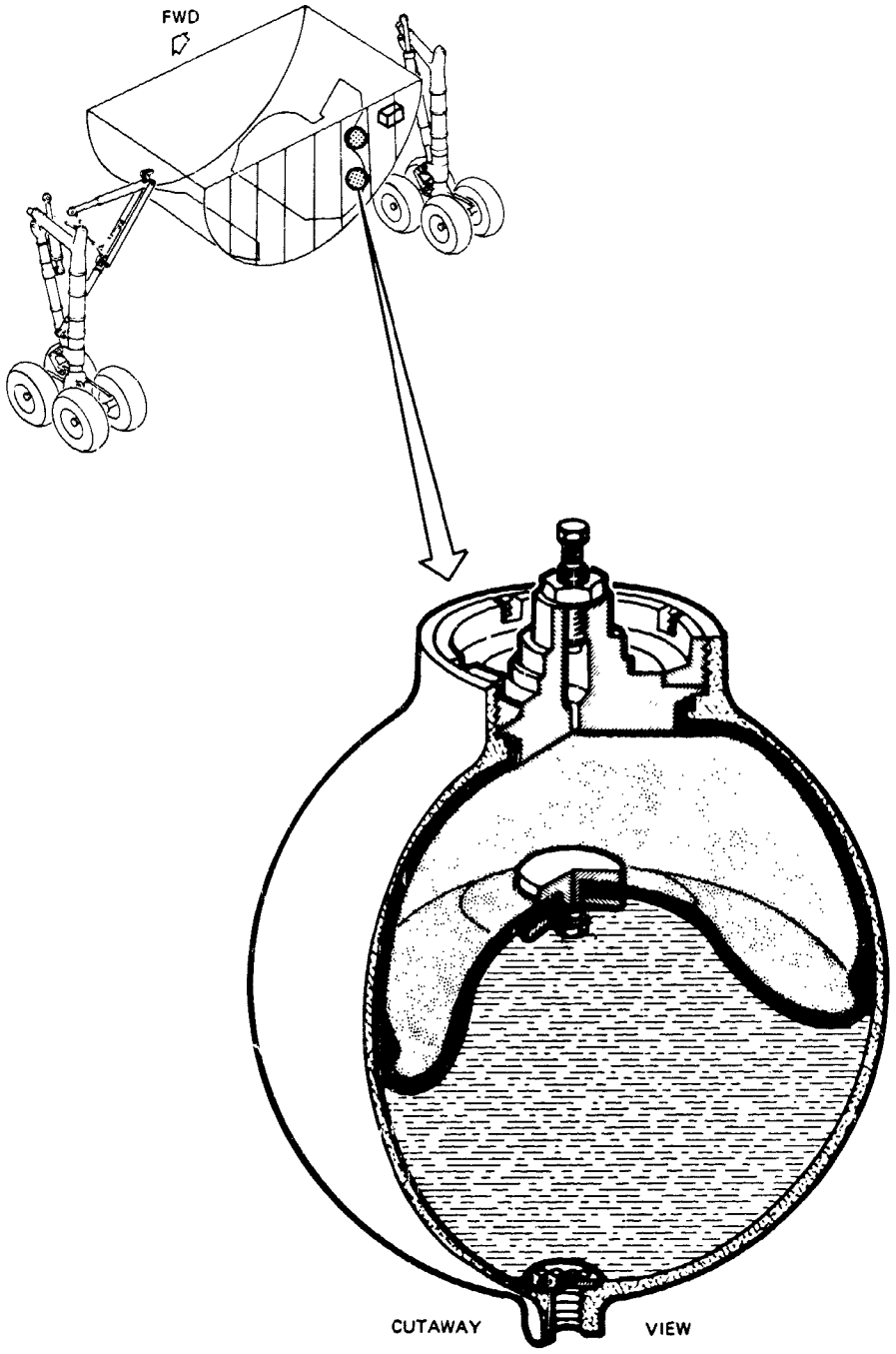
Charging pressure : 114 bars at 60°C (1653 psi at 140°F)
100 bars at 20°C (1450 psi at 68°F)
90 bars at - 10°C (1305 psi at 14°F)
86 bars at - 20°C (1247 psi at -4°F)

Volume of fluid restituted : 3168 cm^3.

These accumulators are used solely for braking. Pressurization is achieved either by the Yellow hydraulic system or by an electric pump.

Check valves isolate the supply lines.

A pressure transmitter mounted in the common delivery line transmits hydraulic fluid pressure information to the third input of the brake Yellow pressure triple indicator.



BM5 32 44 00 0 BEMO

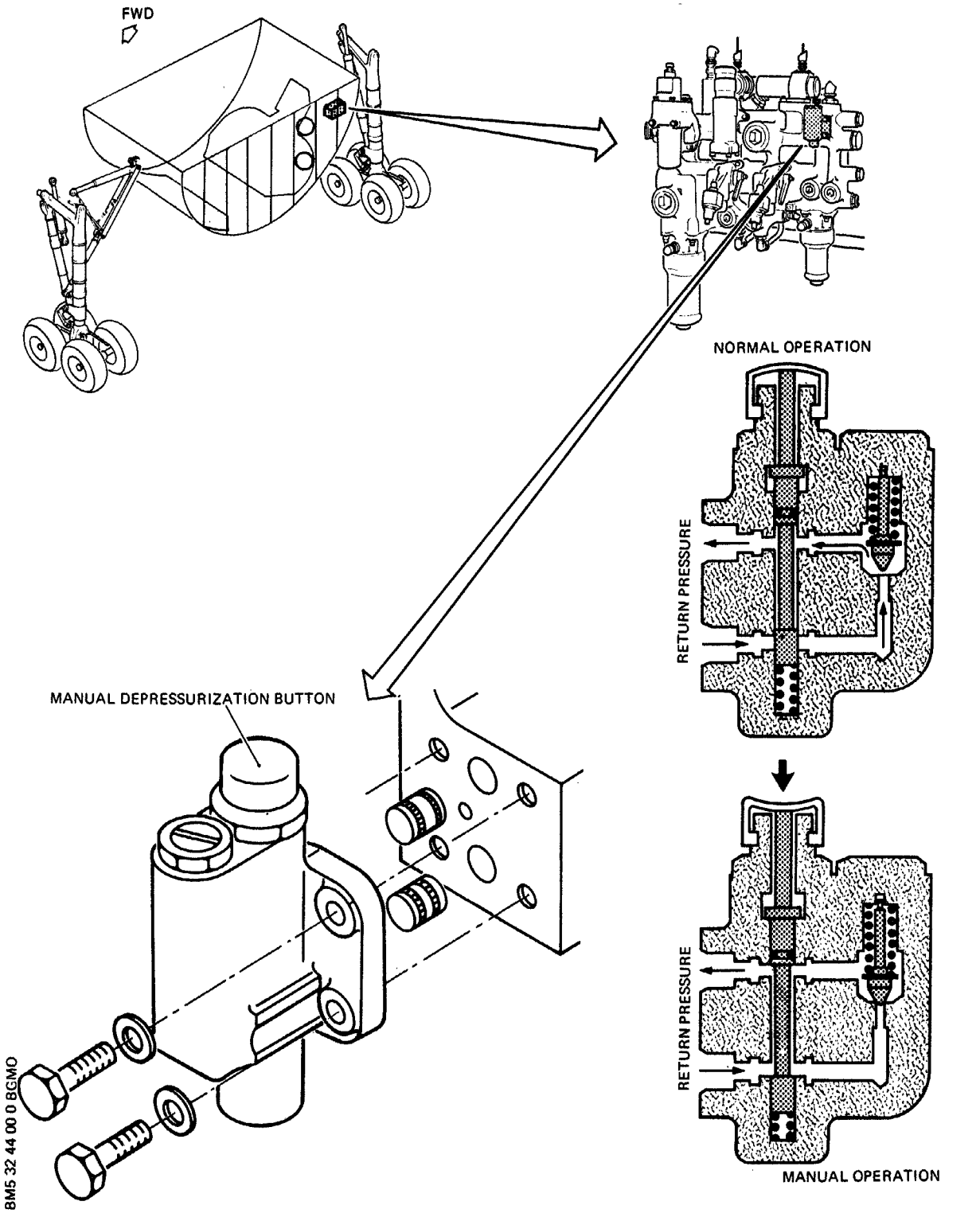
Accumulator
Figure 005

(2)Brake Yellow pressure relief valve.
(Ref. Fig. 006)
The system supplied by the two brake Yellow power accumulators is protected by a thermal pressure relief valve, also serving for manual depressurization, which limits the pressure to 237 bars (3437 psi) in the event of thermal expansion.

B. Pressure Relief and Check Valves
Two pressure relief valves, incorporated in the Alternate brake servovalve manifold, connect the supply to the manifold return. This interconnection enables the brakes to be drained irrespective of the position of the servovalve slide valve.
Two check valves, installed in the hydraulics compartment in the Alternate brake servovalve return, prevent emptying of the return accumulators (fluid saving).

4. Operation
The Alternate brake system without anti skid protection (ALTN/OFF braking) is controlled, as for Alternate braking with anti skid protection (ALTN/ON), through the pedals.
Artificial feel characteristics (load on pedals/pedal angle) are identical.
Maximum pressure delivered to the brakes is approximately 10 bars (145 psi) higher than in ALTN/ON mode as it is no longer affected by leakage at the Alternate brake servovalves which shifts the dual distribution valve balanced position slightly.
Seven full brake applications are ensured by :
- shutting off of the brake servovalve return lines.
- partial draining of the brakes upon pedal release.
- isolation of the return accumulators.
  These accumulators are filled at the first application of the brakes and remain filled.

Upon depression of the pedals, pressure builds up at the brakes through the Alternate brake servovalves. The servovalves can operate under brake regulation as long as the return is not pressurized by the internal leakage specific to the servovalves.
Upon pedal release, pressure relief valves ensure draining of the brakes irrespective of the position of the servovalve.



Brake Yellow Pressure Relief Valve
Figure 006

ALTERNATE BRAKING WITHOUT ANTI SKID - ADJUSTMENT/TEST

WARNING : CHECK THAT THE LANDING GEAR GROUND SAFETIES INCLUDING WHEEL CHOCKS ARE IN POSITION.

BEFORE APPLYING OR RELIEVING HYDRAULIC SYSTEM PRESSURE, MAKE CERTAIN THAT THE TRAVEL RANGES OF THE CONTROL SURFACES ARE CLEAR.

BEFORE PRESSURIZING HYDRAULIC SYSTEMS, CHECK THAT ALL CONTROLS ARE SET TO CORRESPOND WITH THE ACTUAL POSITION OF THE SERVICES THEY OPERATE.

BEFORE PRESSURIZING HYDRAULIC SYSTEMS MAKE CERTAIN THAT HYDRAULIC SYSTEM UNDER MAINTENANCE HAS BEEN ISOLATED.

BEFORE POWER IS SUPPLIED TO THE AIRCRAFT MAKE CERTAIN THAT ELECTRICAL CIRCUITS UPON WHICH WORK IS IN PROGRESS ARE ISOLATED.

1. Operational Test

NOTE : Without any braking (brake pedal released) a slight pressure
R indication on triple indicator is quite normal and without effect.
R

Operational test of Alternate braking without anti skid (Ref. 32-43-00, P. Block 501

2. Functional Test

NOTE : Without any braking (brake pedal released) a slight pressure
R indication on triple indicator is quite normal and without effect.
R

A. Reason for the Job

(1)Test of switchover from **ALTN/ON** to **ALTN/OFF** mode braking via **BRK/A/SKID** switch **96GG**.
(2)Parking brake selector **3309** switchover test.
(3)Functional test of Yellow electric pump **25GX** (Ref. 29-24-00, P. Block 501).
(4)Test of braking supplied with accumulator pressure.
(5)Brake accumulator system leakage test (**PARKING BRAKE RELEASED**).

B. Equipment and Materials

ITEM	DESIGNATION
1.	Cart - Ground Power Supply and Preliminary Testing, 150l/min. (39.6 US ga l/min.) Hydraulic
2.	Pressure Gage - Brake Block Hydraulic Pressure
3.	Wheel Chocks
4.	Warning Notices
5.	Safety Barriers
Referenced Procedures - 07-11-00, P. Block 1	Jacking for Aircraft Maintenance Operations

ITEM	DESIGNATION
- 12-14-32, P. Block 1	Landing Gear Inflating and charging
- 24-41-00, P. Block 301	AC External Power Control
- 29-10-00, P. Block 301	Main Hydraulic Power - Pressurization/ Depressurization
- 29-14-00, P. Block 301	Hydraulic Reservoir Pressurizing System
R - 29-23-00, P. Block 301	Yellow Auxiliary Power (Power Transfer Unit)
- 29-24-00, P. Block 501	Yellow Auxiliary Power (Electric Pump)
- 32-00-00, P. Block 501	General
- 32-12-11, P. Block 301	Main Gear Main Door - (Ground Door(s) Opening)

C. Procedure

(1)Job set-up

(a)On panel 4VU

- make certain that landing gear control lever is in **DOWN** position and prohibit its operation by displaying a warning notice.

(b)Make certain that wheel chocks are in position.

(c)Between First Officer's and Third Occupant's seats

- make certain that landing gear Free Fall extension control handle is in Normal position.

(d)On mechanincal center pedestal 9VU

- make certain that **PARKING BRAKE** control handle is in Normal (released) position.

(e)Connect landing gear safety relay control simulator test set (Ref. 32-00-00, P. Block 501) and place switches in **GROUND** and **DOWNLOCKED** position.

(f)Install a pressure gage downstream of the four Alternate servovalves.

(g)Make certain that the following circuit breakers are closed :

PANEL	SERVICE	IDENT.	LOCATION
133VU	ACCU PRESS/CTL&/CARGO DOOR/PUMP	7GX	333/T51
101VU	ELEC/HYD/PUMP	23GX	/B5
133VU	YELLOW BRK/TRIPLE/PRESS/IND	70GG	333/T60

WARNING : MAKE CERTAIN THAT DOOR TRAVEL RANGES ARE CLEAR.

(h)Open left main gear door (Ref. 32-12-11, P. Block 301).

WARNING : WHEN DOOR IS OPEN, MAKE CERTAIN THAT SAFETY COLLARS ARE POSITIONED ON DOOR ACTUATING CYLINDERS.

R (i)Connect hydraulic ground power cart to Green hydraulic system ground connector (Ref. 29-10-00, P. Block 301).

R (j)Energize the aircraft electrical network (Ref. 24-41-00, P. Block 301). Make certain that electronics racks ventilation is correct.

R (k)Check that accumulator nitrogen pressure is 100 bars (1450 psi) for an ambient temperature of 20°C (Ref.12-14-32, P. Block 1).

D. Tests

(1)Test of switchover from **ALTN/ON** to **ALTN/OFF** mode braking via **BRK/A/SKID** switch **96GG**.

R (a)Pressurize Green hydraulic system (Ref. 29-10-00, P. Block 301).
R (b)Pressurize Yellow hydraulic system (Ref. 29-23-00, P. Block 301).
(c)If this test is performed with aircraft on its wheels :
- on landing gear safety relay control simulator test set place switch in FLIGHT position.

(d)Test

ACTION	RESULT
1. On electrical center pedestal 11VU, on ECAM control panel - press WHEEL pushbutton switch	On panel 4VU, on right ECAM display unit - WHEEL page is displayed and 8 brake release symbols appear.
2. On panel 401VU - place BRK/A/SKID switch is ALTN/ON position	
3. Depress First Officer's pedals and hold depressed	On triple indicator 71GG - Yellow pressure is sent to the brakes but pistons are in de-activated position. On right ECAM display unit (WHEEL page) - 8 brake release symbols are still displayed (anti skid operational).
4. Place BRK/A/SKID switch in ALTN/OFF position with First Officer's pedals still depressed.	On triple indicator 71GG - Yellow pressure is applied to brakes. (Pistons are in activated position). On right ECAM display unit - 8 brake release symbols are no longer displayed (anti skid inhibited).
5. On ECAM section of maintenance panel 470VU - press INHIB/OVRD pushbutton switch	On panel 8VU, on Captain and F/O main instrument panels 3VU and 5VU - MASTER CAUT lights flash. Single chime sounds. On panel 4VU, on left ECAM display unit - following message is displayed : BRAKES (amber) ANTI SKID OFF (amber) MAX BRK PRESS 1000 psi (blue) AUTO BRK FAULT (amber)
6. On panel 401VU - place BRK/A/SKID switch in ALTN/ON position	On panel 8VU, on Captain and F/O main instrument panels 3VU and 5VU.

ACTION	RESULT
	- MASTER CAUT lights go off. On panel 4VU, on left ECAM display unit - following message is displayed BRAKES AUTO BRK FAULT On right ECAM display unit - 8 brake release symbols are displayed (anti skid operational).

7. Release First Officer's pedals.

(e)Depressurize Yellow hydraulic system (Ref. 29-23-00, P. Block 301).
(f)Depressurize Green hydraulic system (Ref. 29-10-00, P. Block 301).
(2)Parking brake selector 3309 switch over test.
(a)Pressurize Yellow hydraulic system (Ref. 29-10-00, P. Block 301).
(b)If this test is performed with the aircraft resting on its wheels :
- on landing gear safety relay control simulator test set, place switches in FLIGHT position.
(c)Test

ACTION	RESULT
1. On panel 401VU - place BRK/A/SKID switch in ALTN/ON position and depress First Officer's pedals and hold depressed	On panel 4VU, on triple indicator 71GG, check that : - yellow pressure is sent to the brakes On pressure gages installed downtream of Alternate servovalves check that : - pressure delivered to the brakes is zero (anti-skid operational
2. Maintain Yellow pressure in the brake accumulator system at 206 bars (2988 psi) using electric pump 25GX by pressing and holding ELEC PARKING BRAKE/ACCU PRESS pushbutton switch 8GX located on mechanical center pedestal 9VU Brake accumulator system pressure is displayed on ACCU PRESS SECTION of triple indicator 71GG.	
3. Using hydraulic ground power unit reduce Yellow system pressure to 115 ±10 bars (1682 ±145 psi)	On pressure gages and on triple indicator 71GG - check that Yellow pressure is applied to the eight brakes (switchover to accumulator

ACTION	RESULT
	pressure ; anti skid system inhibited).
4. Using hydraulic ground power unit increase Yellow system pressure to 130 ±10 bars (1885 ±145 psi)	- Check that Yellow pressure is no longer applied to the eight brakes : Yellow hydraulic system and anti skid system operational.
5. Release First Officer's pedals.	
6. Perform operations 1, 2, 3, 4 and 5 using Captain's pedals	Results as for paragraphs 1, 2, 3, 4 and 5.

(3)Functional test of Yellow electric pump 25GX (Ref. 29-24-00, P. Block 501).
(4)Test of braking supplied with accumulator pressure.
(a)Make certain that Green and Yellow hydraulic systems are depressurized.
(b)Make certain that landing gear Normal control lever is in **DOWN** position.
(c)Test

ACTION	RESULT
1. Using Yellow electric pump 25GX increase and maintain brake system accumulator pressure to 206 bars (2988 psi). This pressure is read on **ACCU PRESS** section of triple indicator 71GG.	
2. Fully depress Captain's right and left pedals	On triple indicator 71GG - check that maximum pressure applied to the brakes is 175 +20 -10 bars (2538 +290-145 psi).
3. Release Captain's pedals	On triple indicator 71GG - pressure applied to the brakes drops to zero.
4. Repeat step 2 and 3 seven times	On triple indicator 71GG - pressure decreases after each application - after the seventh full brake application the pressure remains ≥ 103 bars (1500 psi).

(5)Brake accumulator system test (**PARKING BRAKE** control handle in normal

released position - accumulator only pressurized).
(a)Make certain that Green and Yellow hydraulic systems are depressurized.
(b)Check accumulator charging pressure ; 100 bars (1450 psi) for an ambient temperature of 20°C (68°F) (Ref. 12-14-32, P. Block 1).
(c)On panel 9VU :
- make certain that **PARKING BRAKE** control handle is in normal (released) position.
(d)Make certain that Captain's and First Officer's pedals are released.
(e)On panel 9VU :
- Pressurize brake accumulator system 206 bars (2988 psi), by pressing Elec **PUMP/PUSH FOR PRESSURE** pushbutton 8GX.
CAUTION : DO NOT HOLD PUSHBUTTON 8GX FOR MORE THAN 40 SECONDS.
- Brake accumulator system pressure is read in Yellow **ACCU PRESS** indicator 71GG.
(f)Perform leakage test
- check on the LH and RH accumulator pressure gages in the MLG wheel well that pressure drop does not exceed following limits :
207 bars (3000 psi) to 172 bars (2500 psi) in less than 5 minutes.
207 bars (3000 psi) to 103 bars (1500 psi) in less than 30 minutes.
207 bars (3000 psi) to 0 bar (0 psi) in less than 1 hour.
If pressure drop is out of tolerance check system to locate leak.

E. Close-Up
(1)On panel 4VU
- make certain that landing gear control lever is in **DOWN** position.
(2)De-energize the aircraft electrical network (Ref. 24-41-00, P. Block 301).
(3)Disconnect landing gear safety relay control simulator (Ref. 32-00-00, P. Block 301)
(4)If test has been performed with aircraft on jacks
- lower the aircraft onto its wheels (Ref. 07-11-00, P. Block 1).
(5)Remove pressure gages.
WARNING : MAKE CERTAIN THAT GEAR DOOR TRAVEL RANGES ARE CLEAR.
(6)Close left main gear door (Ref. 32-12-11, P. Block 301).
(7)Disconnect hydraulic ground power cart (Ref. 29-10-00, P. Block 301).
(8)Remove warning notices.
(9)Remove all ground handling and maintenance equipment, standard and special tools, together with ground power and replenishing equipment, all access equipment and miscellaneous items.

CHARGE PRESSURE OF BRAKE ACCUMULATORS - INSPECTION/CHECK

WARNING : CHECK THAT THE LANDING GEAR GROUND SAFETIES INCLUDING WHEEL CHOCKS ARE IN POSITION.

1. Reason for the Job
   To check charge pressure of brake accumulators

2. Equipment and Materials

ITEM	DESIGNATION
A.	Access Platform, Adjustable 2 m (6 ft.)
B.	Safety Barriers
Referenced Procedures	
- 12-14-32, P. Block 1	Inflating and Charging - Landing Gear
- 24-41-00, P. Block 301	AC External Power Control - Servicing
- 29-10-00, P. Block 301	Main Servicing
- 32-12-11, P. Block 301	Main Gear Door

3. Procedure

A. Job Set-Up
(1)Make certain that Green and Yellow hydraulic systems are depressurized (Ref. 29-10-00, P. Block 301).
(2)On upper center instrument panel 4VU :
- Make certain that landing gear control lever is in **DOWN** position and prohibit its operation by displaying a warning notice.

(3)Between First Officer's and Third Occupant's seats :
- Make certain that landing gear Free Fall extension control handle is in Normal position.
- Make certain that Captain's and First Officer's pedals are released.

(4)On mechanical center pedestal 9VU :
- Make certain that **PARKING BRAKE** control handle is in Normal (released) position.

(5)Position access platform in position at zone 148.
(6)Position safety barriers prohibiting access to gear door travel ranges.
(7)Energize the aircraft electrical network (Ref. 24-41-00, P. Block 301).
WARNING : MAKE CERTAIN THAT GEAR DOOR TRAVEL RANGES ARE CLEAR.
(8)Open left main gear door (Ref. 32-12-11, P. Block 301)

B. Brake Accumulator System Test (**PARKING BRAKE** control handle in normal released position - accumulator only pressurized).
(1)Check accumulator charging pressure ; 100 bars (1450 psi) for an ambient temperature of 20 deg.C (68 deg.F) (Ref. 12-14-32, P. Block 1).
(2)On mechanical center pedestal panel 9VU :
(a)Make certain that **PARKING BRAKE** control handle is in normal (released) position.
(b)On mechanical center pedestal 9VU :
- Pressurize brake accumulator system, by pressing Elec **PUMP/PUSH FOR PRESSURE** pushbutton 8GX.

CAUTION : DO NOT HOLD PUSHBUTTON 8GX FOR MORE THAN 40 SECONDS.

(c)On upper center instrument panel 4VU :
- Brake accumulator system pressure is read on Yellow ACCU PRESS indicator 71GG.

(d)Perform leakage test
1 Check on the L and R accumulator pressure gages in the MLG wheel well that pressure drop does not exceed following limits :
- 207 bars (3000 psi) to 172 bars (2500 psi) in less than 5 minutes.
- 207 bars (3000 psi) to 103 bars (1500 psi) in less than 30 minutes.
- 207 bars (3000 psi) to 0 bar (0 psi) in less than 1 hour.
- If pressure drop is out of tolerance check system to locate leak.

C. Close-Up

(1)De-energize the aircraft electrical network (Ref. 24-41-00, P. Block 301).
(2)Remove warning notices.
(3)Close left main gear door (Ref. 32-12-11, P. Block 301).
(4)Remove access platforms and safety barriers.
(5)Remove all ground handling and maintenance equipment, standard and special tools, together with ground power and replenishing equipment, all access equipment and miscellaneous items.

BRAKE ACCUMULATOR (3125-3126) - REMOVAL/INSTALLATION

WARNING : CHECK THAT THE LANDING GEAR GROUND SAFETIES INCLUDING WHEEL CHOCKS ARE IN POSITION.

1. Equipment and Materials

ITEM	DESIGNATION
A.	Access Platform 2.60 m (8 ft. 7 in.)
B. 99A29001006000	Unit-Topping Up, Hydraulic Tank (Hand Operated)
C.	Air/Hydraulic Tool Kit
D.	Compressed Air Cylinders
E.	Nitrogen Cylinders
F.	Hydraulic Fluid Container
G.	Blanking Plugs
H.	Warning Notice
J.	Safety Barriers
K.	Wheel Chocks
L.	Circuit Breaker Safety Clips
Referenced Procedures	
- 12-12-29, P. Block 1	Hydraulic Reservoir Replenishing
- 24-41-00, P. Block 301	AC External Power Control
- 29-10-00, P. Block 301	Main Hydraulic Power - Pressurization/ Depressurization
- 29-14-00, P. Block 301	Hydraulic Reservoir - Pressurization/ Depressurization
- 29-24-00, P. Block 301	Yellow Auxiliary Power (Electric Pump) - Pressurization
- 32-12-11, P. Block 301	Main Gear Main Door - (Ground Door(s) Opening)
- 32-43-00, P. Block 301	Alternate Braking with Anti-Skid

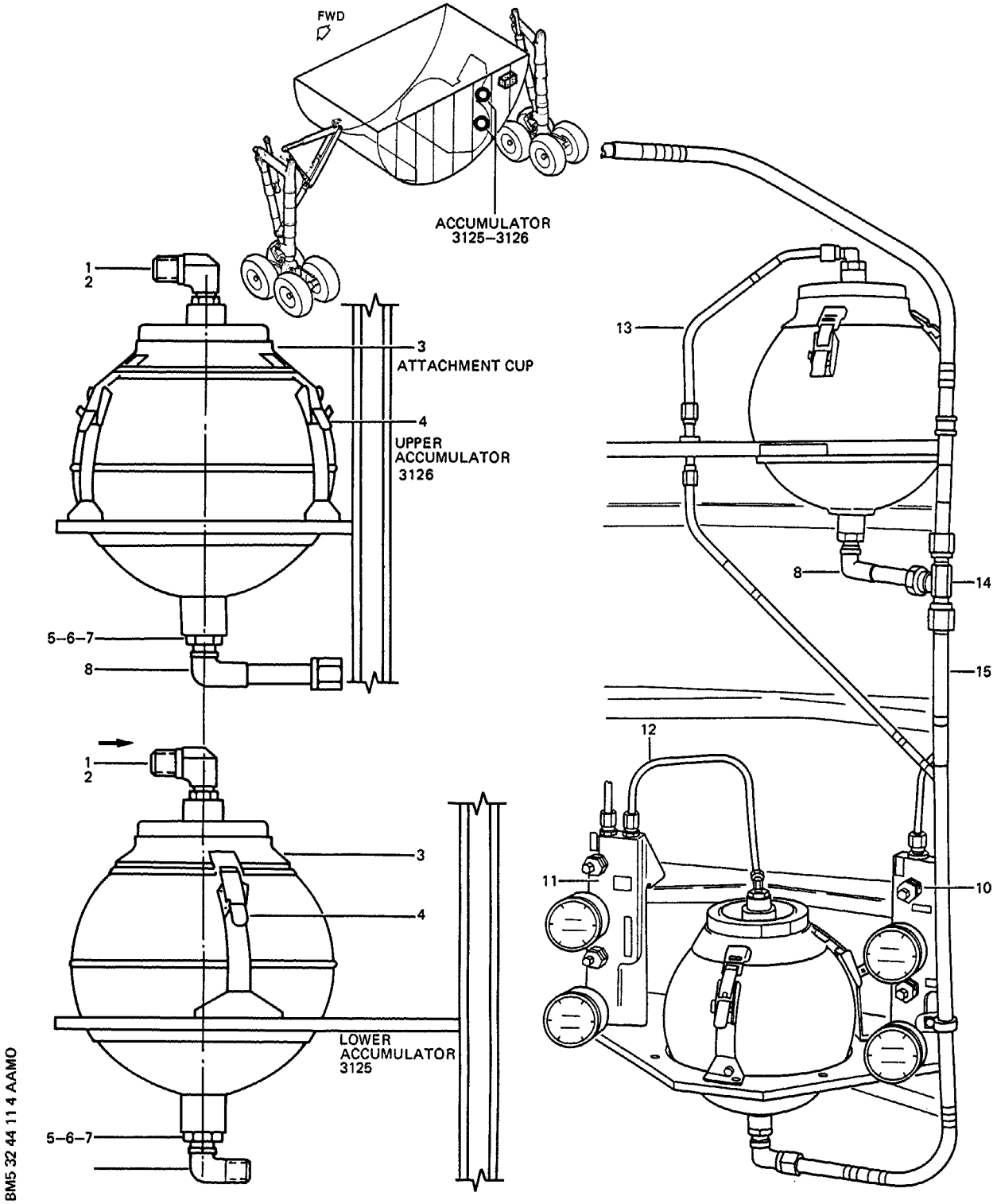
2. Procedure

A. Job Set-Up
(1)Make certain that wheel chocks are in position.
(2)On panel 4VU
- make certain that landing gear control lever is in **DOWN** position and prohibit its operation by displaying a warning notice.
(3)Between First Officer's and 3rd Occupant's seats
- make certain that landing gear Free Fall extension control handle is in Normal position.
(Ref. Fig. 401)
(4)Open, safety and tag the following circuit breakers :

PANEL	SERVICE	IDENT.	LOCATION
133VU	HYDRAULIC-/ELEC/PUMPS/WARN	4GE	331/V60
133VU	HYDRAULIC-ACCU PRESS CTL AND CARGO DOOR PUMP	7GX	333/T51

(5)Position access platform.
(6)Position safety barriers prohibiting access to gear door travel ranges.
WARNING : MAKE CERTAIN THAT THE DOOR TRAVEL RANGES ARE CLEAR.
(7)Open right main gear door (Ref. 32-12-11, P. Block 301)
WARNING : WHEN DOORS ARE OPEN MAKE CERTAIN THAT SAFETY COLLARS ARE POSITIONED ON DOOR ACTUATING CYLINDERS.
(8)Depressurize Yellow hydraulic reservoir (Ref. 29-14-00, P. Block 301) and prohibit its pressurization by displaying a warning notice :
- on panel 429VU, to prohibit APU starting
- on hydraulic reservoir pressurization connector
(9)Depressurize Yellow hydraulic system and braking Yellow system using pressure relief valve 3067 manual control located on pressure manifold 3060 (Ref. 29-10-00, P. Block 301) and
prohibit its pressurization by displaying a warning notice :
- on Yellow hydraulic system ground connectors
- on panel 427VU to prohibit energization of power transfer unit (right PTU pushbutton switch)
(10)Position hydraulic fluid container
(11)Release accumulator nitrogen pressure by operating lower valve on manifold (10) for accumulator (3126) and manifold (11) for accumulator (3125).
(a)Remove cap from valve.
(b)Loosen locknut.
(c)Release the pressure by operating the valve.
(d)Make certain that the pressure indicated by the pressure gage is zero.
WARNING : MAKE CERTAIN THAT YELLOW HYDRAULIC SYSTEM IS NOT SUPPLIED.

B. Removal
(1)Lower accumulator (3125).
(a)Disconnect line (12) from elbow union (1).



Brake System Accumulator
Figure 401

(b)Disconnect line (15) from accumulator elbow union (9).
(2)Upper accumulator (3126).
(a)Disconnect line (13) from elbow union (1).
(b)Disconnect line (8) from T union (14).
(3)Release the three attachment straps (4).
(4)Remove attachment cup (3).
(5)Remove the accumulator from its support.

C. Preparation of Replacement Component
(1)Lower accumulator (3125).
(a)Remove elbow union (1) from accumulator. Discard packing (2).
(b)Remove elbow union (9), extract and discard packing (6) and packing washer (7).
(c)Install elbow union (1) equipped with a new packing (2).
(d)Install elbow union (9) equipped with packing (6) and packing washer (7). Do not tighten locknut (5).
(2)Upper accumulator (3126).
(a)Remove elbow union (1) and extract packing (2).
(b)Remove elbow union (8) extract and discard packing (6) and packing washer (7).
(c)Install elbow union (1) equipped with a new packing (2).
(d)Install elbow union (8) equipped with a new packing and a washer on to the lower part of the replacement component without tightening locknut (5).

D. Installation
(1)Install accumulator on its support so that the upper elbow union (1) is correctly positioned in relation to line.
(2)Install attachment cup (3) after checking the condition of the seal.
(3)Secure the three attachment straps (4).
(4)On lower accumulator (3125) :
(a)Connect line (12) to elbow union (1)
(b)Position elbow union (9) and connect line (15)
- Tighten locknut (5).
(5)On upper accumulator (3126)
(a)Position line (13) and union (1)
- connect line (13)
(b)Position line/union (8) assembly on T union (14)
- Position line/union (8) assembly
- Connect line (8)
- Tighten locknut (5).

E. Tests
(1)Accumulator charging
(a)Accumulator 3126
1 Connect charging equipment to lower valve on manifold (10).
(b)Accumulator 3125
1 Connect charging equipment to lower valve on manifold (11).
(c)Make certain that locknut is loosened.
(d)Charge each accumulator (3125 and 3126) with nitrogen according to temperature (Ref. label on manifolds (10) and (11)) : 100 bars at 20°C

(1450 psi). (Reading on pressure gage associated with charging valve).
(e)Tighten valve locknut.
(f)Remove charging equipment.
(g)Install valve cap.
(2)Remove safety clips and tags, and close circuit breakers 4GE and 7GX.
(3)Pressurize the Yellow hydraulic reservoir (Ref. 29-14-00, P. Block 301).
(4)Pressurize Yellow hydraulic system by means of Yellow electric pump (Ref. 29-24-00, P. Block 301).
(5)Check for hydraulic fluid and nitrogen leakage at accumulator unions.
(6)Check that manifold (10) and (11) pressure gages indicate 206 bars.
(7)Perform bleeding of alternate braking system from the flight compartment (Ref. 32-43-00, P. Block 301).

F. Close-Up
(1)Make certain that working area is clean and clear of tools and miscellaneous items of equipment.
(2)Remove hydraulic fluid container.
(3)Pressurize hydraulic reservoirs (Ref. 29-14-00, P. Block 301).
WARNING : MAKE CERTAIN THAT DOOR TRAVEL RANGES ARE CLEAR.
(4)Close main landing gear doors (Ref. 32-12-11, P. Block 301).
(5)Remove warning notices.
(6)Close access doors, remove access platform and safety barriers.
(7)Remove all ground handling and maintenance equipment standard and special tools, together with ground power and replenishing equipment, all access equipment and miscellaneous items.

R Ref. MMEL Section 1-32, Item 14 (Yellow brake system)

CAUTION : THIS PROCEDURE IS TO BE USED ACCORDING TO THE REQUIREMENTS OF THE MMEL.

WARNING : CHECK THAT THE LANDING GEAR GROUND SAFETIES INCLUDING WHEEL CHOCKS ARE IN POSITION.
BEFORE APPLYING OR RELIEVING HYDRAULIC SYSTEM PRESSURE, MAKE CERTAIN THAT THE TRAVEL RANGES OF THE CONTROL SURFACES ARE CLEAR.
BEFORE PRESSURIZING HYDRAULIC SYSTEMS, CHECK THAT ALL CONTROLS ARE SET TO CORRESPOND WITH THE ACTUAL POSITION OF THE SERVICES THEY OPERATE.
BEFORE POWER IS SUPPLIED TO THE AIRCRAFT MAKE CERTAIN THAT ELECTRICAL CIRCUITS UPON WHICH WORK IS IN PROGREES ARE ISOLATED.
BEFORE PRESSURIZING HYDRAULIC SYSTEMS MAKE CERTAIN THAT HYDRAULIC SYSTEM UNDER MAINTENANCE HAS BEEN ISOLATED.

1. Brake Accumulator System Deactivation

A. Equipment and Materials

ITEM	DESIGNATION
A.	Access Platform 2.60 m (8 ft. 7 in.)
B.	Air/Hydraulic Tool Kit
C.	Compressed Air Cylinders
D.	Nitrogen Cylinders
E.	Hydraulic Fluid Container
F.	Blanking Plugs
G.	Warning Notice
H.	Safety Barriers
J.	Wheel Chocks
K.	Circuit Breaker Safety Clips
Referenced Procedures	
- 12-12-29, P. Block 1	Hydraulics
- 12-14-29, P. Block 1	Hydraulic System Accumulators
- 24-41-00, P. Block 301	AC External Power Control
- 29-10-00, P. Block 301	Main Hydraulic Power - Pressurization/Depressurization
- 29-14-00, P. Block 301	Hydraulic Reservoir Pressurizing System
- 29-24-00, P. Block 301	Yellow Auxiliary Power (Electric Pump)
- 32-12-11, P. Block 301	Main Gear Main Door - (Ground Door(s) Opening)
- 32-43-00, P. Block 301	Alternate Braking with Anti-Skid

B. Procedure

(1)Job set-up

(a)Make certain that wheel chocks are in position.

(b)On panel 4VU

- Make certain that landing gear Normal control lever is in **DOWN** position and prohibit its operation by displaying a warning notice.

(c)Between First Officer's and Third Occupant's seats

- Make certain that landing gear Free Fall extension control handle is in Normal position.

(d)Open, safety and tag the following circuit breakers :

PANEL	SERVICE	IDENT.	LOCATION
133VU	HYDRAULIC-/ELEC/PUMPS/WARN	4GE	331/V60
133VU	HYDRAULIC-ACCU PRESS CTL AND CARGO DOOR PUMP	7GX	333/T51

(e)Position access platform.

(f)Position safety barriers prohibiting access to gear door travel ranges.

WARNING : MAKE CERTAIN THAT THE DOOR TRAVEL RANGES ARE CLEAR.

(g)Open right main gear door (Ref. 32-12-11, P. Block 301).

WARNING : WHEN DOORS ARE OPEN, MAKE CERTAIN THAT SAFETY COLLARS ARE POSITIONED ON DOOR ACTUATING CYLINDERS.

(h)Depressurize Yellow hydraulic Reservoir (Ref. 29-14-00, P. Block 301) and prohibit its pressurization by displaying a warning notice :
- on panel 429VU, to prohibit APU starting
- on hydraulic reservoir pressurization connector.

(j)Depressurize Yellow hydraulic system and Yellow braking system using pressure relief valve (3067) manual control located on pressure manifold (3060) (Ref. 29-10-00, P. Block 301) and prohibit its pressurization by displaying a warning notice :
- on Yellow hydraulic system ground connectors
- on panel 427VU to prohibit energization of power transfer unit (right PTU pushbutton switch).

(k)Position hydraulic fluid container.

(l)Release accumulator nitrogen pressure by operating lower valve on
R manifold (8) for accumulator (3126) and manifold (10) for accumulator
R (3125).

1 Remove cap from valve.
R 2 Loosen locknut.
3 Release pressure by operating the valve.
4 Make certain that the pressure indicated by the pressure gage is zero.

WARNING : MAKE CERTAIN THAT YELLOW HYDRAULIC SYSTEM IS NOT SUPPLIED.

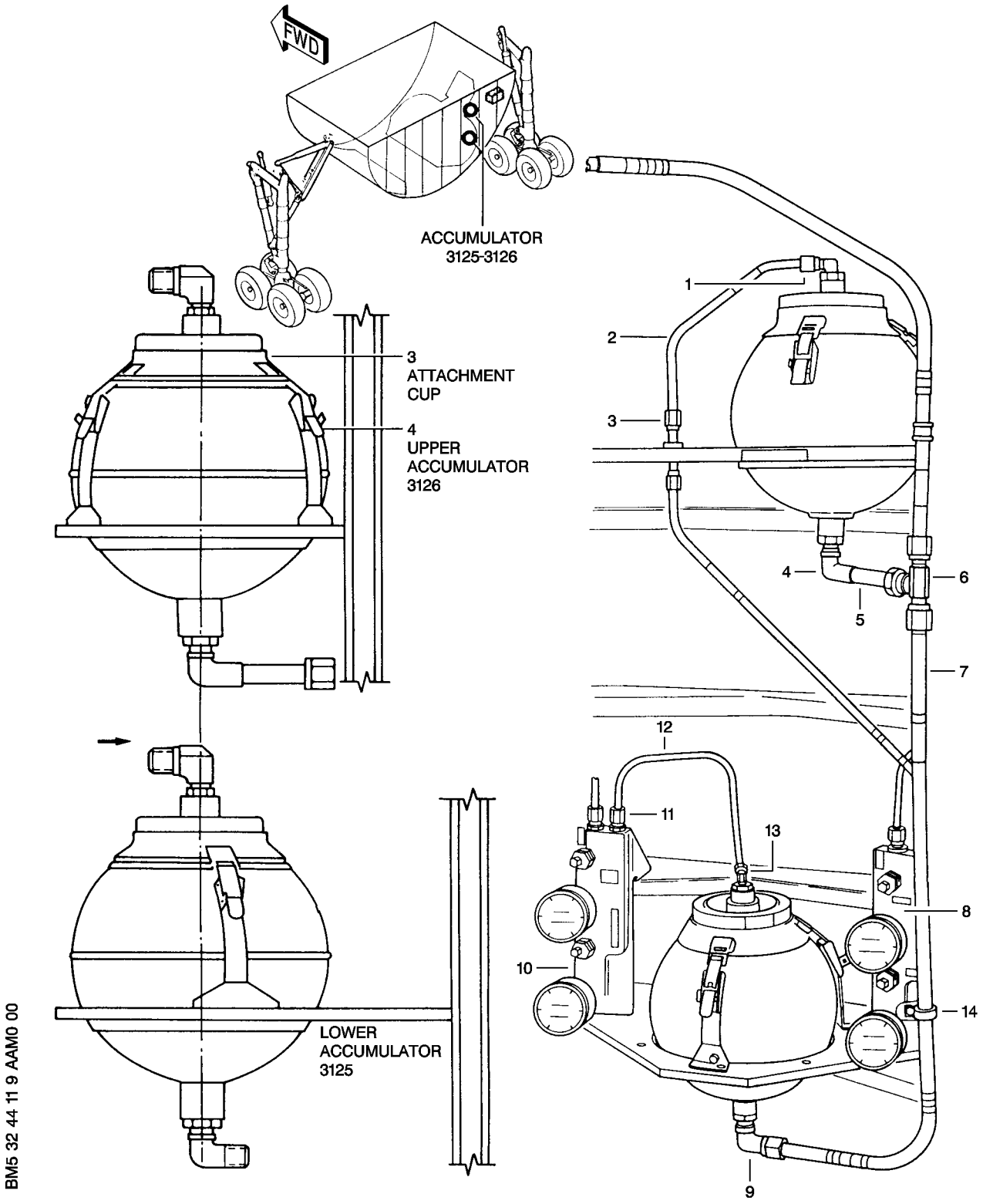
(m)Energize the aircraft electrical network (Ref. 24-41-00, P. Block 301).

(n)Make certain that electronics racks ventilation is correct. (Ref. Fig. 901)

(2)Deactivation

(a)If upper accumulator (3126) faulty :
1 Disconnect line (2) from upper elbow union (1) and elbow (3).
2 Remove line (2) and install blanking caps on upper elbow union (1) and union (3).
3 Disconnect line (5) from lower elbow union (4) and Tee-union (6).
4 Remove line (5) and install blanking cap on lower elbow (4) and Tee-union (6).

(b)If lower accumulator (3125) faulty :
1 Disconnect line (12) from upper elbow union (13) and union (11).
2 Remove line (12) and install blanking caps on upper elbow union (13)



Brake System Accumulator
Figure 901

and union (11).
3 Disconnect line (7) from Tee-union (6) and lower elbow union (9) and remove clamp (14).
4 Remove line (7) and install blanking cap on Tee-union (6) and lower elbow union (9).

(3)Tests
(a)Accumulator charging (Ref. 12-14-29, P. Block 001)
R 1 Connect charging equipment :
R - for accumulator 3126
R . connect charging equipment to lower valve on manifold (8).
R - for accumulator 3125
R . connect charging equipment to lower valve on manifold (10).
R 2 Make certain that locknut is loosened.
R 3 Charge accumulator 3125 or 3126 with nitrogen according to temperature (Ref. label on manifolds (8) and (10)) : 100 bars at 20°C (1450 psi). (Reading on pressure gage associated with charging valve).
R 4 Tighten valve locknut.
R 5 Remove charging equipment.
R 6 Install valve cap.
R (b)Remove safety clips and tags, and close circuit breakers 4GE and 7GX.
R (c)Pressurize the Yellow hydraulic reservoir (Ref. 29-14-00, P. Block 301).
R (d)Pressurize Yellow hydraulic system by means of Yellow electric pump (Ref. 29-24-00, P. Block 301).
R (e)Check for hydraulic fluid and nitrogen leakage at accumulator unions.
R (f)Check that manifold (8) and (10) pressure gages indicate 206 bars (3000 psi).
R (g)Perform bleeding of alternate braking system from flight compartment (Ref. 32-43-00, P. Block 301).
R (h)De-energize the aircraft electrical network (Ref. 24-41-00, P. Block 301).

(4)Close-up
(a)Make certain that working area is clean and clear of tools and miscellanous items of equipment.
(b)Remove hydraulic fluid container.
WARNING : MAKE CERTAIN THAT DOOR TRAVEL RANGES ARE CLEAR.
(c)Close landing gear doors (Ref. 32-12-11, P. Block 301).
(d)Replenish Yellow hydraulic reservoir as necessary (Ref. 12-12-29, P. Block 1).
(e)Disconnect ground power unit (Ref. 24-41-00, P. Block 301).
(f)Remove warning notices.
(g)Close access doors, remove access platform and safety barriers.
(h)Remove all ground handling and maintenance equipment, standard and special tools, together with ground power and replenishing equipment, all access equipment and miscellaneous items.

2. Brake Accumulator System Reactivation

A. Equipment and Materials

ITEM	DESIGNATION
A.	Access Platform 2.60 m (8 ft. 7 in.)
B.	Air/Hydraulic Tool Kit
C.	Compressed Air Cylinders
D.	Nitrogen Cylinders
E.	Hydraulic Fluid Container
F.	Blanking Plugs
G.	Warning Notice
H.	Safety Barriers
J.	Wheel Chocks
K.	Circuit Breaker Safety Clips
Referenced Procedures	
- 12-12-29, P. Block 1	Hydraulics
- 24-41-00, P. Block 301	AC External Power Control
- 29-10-00, P. Block 301	Main Hydraulic Power - Pressurization/Depressurization
- 29-14-00, P. Block 301	Hydraulic Reservoir Pressurizing System
- 29-24-00, P. Block 301	Yellow Auxiliary Power (Electric Pump)
- 32-12-11, P. Block 301	Main Gear Main Door - (Ground Door(s) Opening)
- 32-43-00, P. Block 301	Alternate Braking with Anti-Skid

B. Procedure

(1)Job set-up

(a)Make certain that wheel chocks are in position.

(b)On panel 4VU

- make certain that landing gear Normal control lever is in **DOWN** position and prohibit its operation by displaying a warning notice.

(c)Between First Officer's and Third Occupant's seats

- make certain that landing Free Fall extension control handle is in Normal position.

(d)Open, safety and tag the following circuit breakers :

PANEL	SERVICE	IDENT.	LOCATION
133VU	HYDRAULIC-/ELEC/PUMPS/WARN	4GE	331/V60
133VU	HYDRAULIC-ACCU PRESS CTL AND CARGO DOOR PUMP	7GX	333/T51

(e)Position access platform.

(f)Position safety barriers prohibiting access to gear door travel ranges.

WARNING : MAKE CERTAIN THAT THE DOOR TRAVEL RANGES ARE CLEAR.

(g)Open right main gear door (Ref. 32-12-11, P. Block 301).

WARNING : WHEN DOORS ARE OPEN, MAKE CERTAIN THAT SAFETY COLLARS ARE POSITIONED ON DOOR ACTUATING CYLINDERS.

(h)Depressurize Yellow hydraulic Reservoir (Ref. 29-14-00, P. Block 301) and prohibit its pressurization by displaying a warning notice :

- on panel 429VU, to prohibit APU starting

- on hydraulic reservoir pressurization connector.

(j)Depressurize Yellow hydraulic system and Yellow braking system using pressure relief valve (3067) manual control located on pressure manifold (3060) (Ref. 29-10-00, P. Block 301) and prohibit its pressurization by displaying a warning notice :
- on Yellow hydraulic system ground connectors
- on panel 427VU to prohibit energization of power transfer unit (right PTU pushbutton switch).

(k)Position hydraulic fluid container.

(l)Release accumulator nitrogen pressure by operating lower valve on
R manifold (8) for accumulator 3126 and on manifold (10) for accumulator
R (3125).

1 Remove cap from valve.
R 2 Loosen locknut.
3 Release pressure by operating the valve.
4 Make certain that the pressure indicated by the pressure gage is zero.
WARNING : MAKE CERTAIN THAT YELLOW HYDRAULIC SYSTEM IS NOT SUPPLIED.

(m)Energize the aircraft electrical network (Ref. 24-41-00, P. Block 301).

(n)Make certain that electronics racks ventilation is correct.

(2)Reactivation

(a)If upper accumulator (3126) faulty :
1 Remove blanking caps on upper elbow union (1) elbow union (4), Tee-union (6) and union (3).
2 Connect line (2) on upper elbow union (1) and union (3).
3 Connect line (5) on elbow union (4) and Tee-union (6).

(b)If lower accumulator (3125) faulty :
1 Remove blanking caps on upper elbow union (13), Tee-union (6), lower elbow union (9) and union (11).
2 Connect line (12) on upper elbow union (13) and union (11).
3 Connect line (7) on Tee-union (6) and lower elbow union (9) and install clamp (14).

(3)Tests

(a)Accumulator charging (Ref. 12-14-29, P. Block 1).
R 1 Connect charging equipment :
R - for accumulator 3126
R . connect charging equipment to lower valve on manifold (8).
R - for accumulator 3125
R . connect charging equipment to lower valve on manifold (10).
R 2 Make certain that locknut is loosened.
R 3 Charge each accumulator (3125 and 3126) with nitrogen according to temperature (Ref. label on manifolds (8) and (10)) : 100 bars at 20°C (1450 psi). (Reading on pressure gage associated with charging valve).
R 4 Tighten valve locknut.
R 5 Remove charging equipment.
R 6 Install valve cap.

R (b)Remove safety clips and tags, and close circuit breakers 4GE and 7GX.

R (c)Pressurize the Yellow hydraulic reservoir (Ref. 29-14-00, P. Block 301).

R (d)Pressurize Yellow hydraulic system by means of Yellow electric pump (Ref. 29-24-00, P. Block 301).

R (e)Check for hydraulic fluid and nitrogen leakage at accumulator unions.

R (f)Check that manifold (8) and (10) pressure gages indicate 206 bars (3000 psi).

R (g)Perform bleeding of alternate braking system from flight compartment (Ref. 32-43-00, P. Block 301).

R (h)De-energize the aircraft electrical network (Ref. 24-41-00, P. Block 301).

(4)Close-up

(a)Make certain that working area is clean and clear of tools and miscellanous items of equipment.

(b)Remove hydraulic fluid container.

WARNING : MAKE CERTAIN THAT DOOR TRAVEL RANGES ARE CLEAR.

(c)Close landing gear doors (Ref. 32-12-11, P. Block 301).

(d)Replenish Yellow hydraulic reservoir as necessary (Ref. 12-12-29, P. Block 1).

(e)Disconnect ground power unit (Ref. 24-41-00, P. Block 301).

(f)Remove warning notices.

(g)Close access doors, remove access platform and safety barriers.

(h)Remove all ground handling and maintenance equipment, standard and special tools, together with ground power and replenishing equipment, all access equipment and miscellaneous items.

PRESSURE GAGE - ACCUMULATOR (3128, 3130) - REMOVAL/INSTALLATION

WARNING : CHECK THAT THE LANDING GEAR GROUND SAFETIES INCLUDING WHEEL CHOCKS ARE IN POSITION.
BEFORE APPLYING OR RELIEVING HYDRAULIC SYSTEM PRESSURE, MAKE CERTAIN THAT THE TRAVEL RANGES OF THE CONTROL SURFACES ARE CLEAR.
BEFORE PRESSURIZING HYDRAULIC SYSTEMS, CHECK THAT ALL CONTROLS ARE SET TO CORRESPOND WITH THE ACTUAL POSITION OF THE SERVICES THEY OPERATE.
BEFORE POWER IS SUPPLIED TO THE AIRCRAFT MAKE CERTAIN THAT ELECTRICAL CIRCUITS UPON WHICH WORK IS IN PROGRESS ARE ISOLATED.
BEFORE PRESSURIZING HYDRAULIC SYSTEMS MAKE CERTAIN THAT HYDRAULIC SYSTEM UNDER MAINTENANCE HAS BEEN ISOLATED.

1. Equipment and Materials

ITEM	DESIGNATION
(1)	Circuit Breaker Safety Clips
(2)	Blanking Plugs/Caps
(3)	Warning Notices
(4)	Access Platform, 2.6 m (8 ft. 8 in.)
(5)	Hydraulic Fluid Container
Referenced Procedures	
- 12-14-29, P. Block 1	Hydraulic System Accumulators
- 24-41-00, P. Block 301	AC External Power Control
- 29-10-00, P. Block 301	Main Hydraulic Power - Pressurization/Depressurization
- 29-14-00, P. Block 301	Hydraulic Reservoir Pressurizing System
- 32-12-11, P. Block 301	Main Gear Main Door - (Ground Door(s) Opening)

2. Procedure

A. Job Set-Up

(1)Make certain that wheel chocks are in position.

(2)On panel 4VU :

- make certain that landing gear control lever is in **DOWN** position and prohibit its operation by displaying a warning notice.

(3)Between First Officer's and 3rd Occupant's seats :

- make certain that landing gear Free Fall extension control handle is in Normal position.

(4)Open, safety and tag the following circuit breakers :

PANEL	SERVICE	IDENT.	LOCATION
133VU	ELEC/PUMPS/WARN/	4GE	331/V60
133VU	ACCU PRESS/CTL &/CARGO DOOR/PUMP	7GX	333/T51

(5)Position access platform.

(6)Position safety barriers prohibiting access to gear door travel ranges.

WARNING : MAKE CERTAIN THAT THE DOOR TRAVEL RANGES ARE CLEAR.

(7)Open right main gear door (Ref. 32-12-11, P. Block 301).

WARNING : WHEN DOORS ARE OPEN MAKE CERTAIN THAT SAFETY COLLARS ARE POSITIONED ON DOOR ACTUATING CYLINDERS.

(8)Depressurize Yellow hydraulic reservoir (Ref. 29-14-00, P. Block 301) and prohibit its pressurization by displaying a warning notice :
- on panel 429VU, to prohibit APU starting
- on hydraulic reservoir pressurization connector.

(9)Depressurize Yellow hydraulic system and braking Yellow system using pressure relief valve (3067) manual control located on pressure manifold (3060) (Ref. 29-10-00, P. Block 301) and prohibit its pressurization by displaying a warning notice :
- on Yellow hydraulic system ground connectors
- on panel 427VU to prohibit energization of power transfer unit (right PTU pushbutton switch).

(10)Position hydraulic fluid container.

(11)Release accumulator nitrogen pressure by operating lower valve on manifold (5) for accumulator (3126) and (3125).
(a)Remove cap from valve.
(b)Loosen locknut.
(c)Release the pressure by operating the valve.
(d)Make certain that the pressure indicated by the pressure gage (1) is zero.

WARNING : MAKE CERTAIN THAT YELLOW HYDRAULIC SYSTEM IS NOT SUPPLIED.

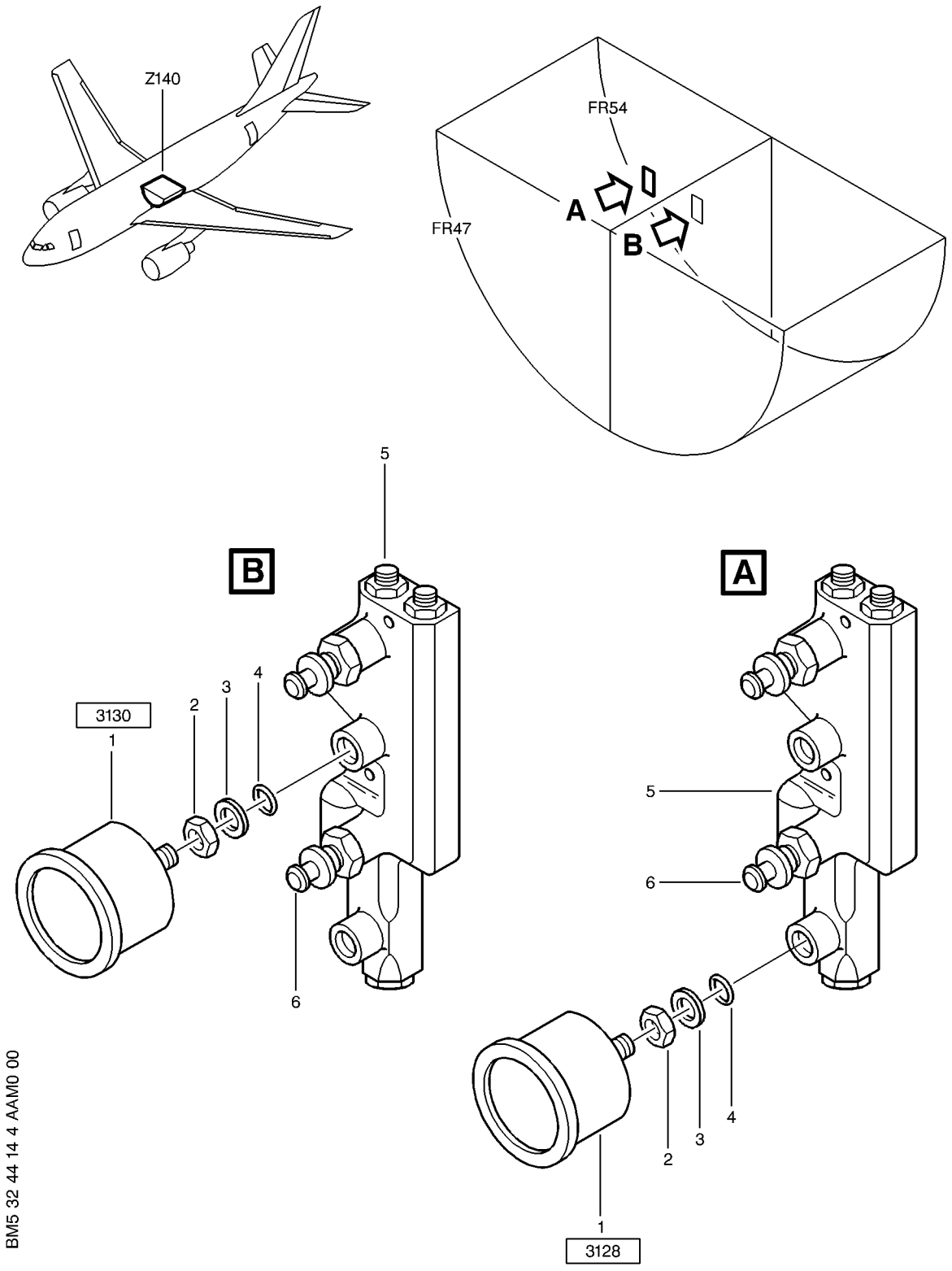
B. Removal of Yellow Accumulator Pressure Gage

(1)Depressurization of Yellow accumulator (Ref. Fig. 401)
(a)Remove cap from valve (6).
(b)Loosen locknut of valve (6).
(c)Release pressure by operating valve (6).
(d)Make certain that pressure read on pressure gage (1) is zero.

(2)Removal of Yellow accumulator pressure gage
(a)Loosen nut (2).
(b)Remove pressure gage (1).
(c)Remove and discard packing (4) and packing washer (3).
(d)Remove and retain nut (2) of pressure gage (1).
(e)Put blanking plugs on disconnected line ends.

C. Installation of Yellow Accumulator Pressure Gage

(1)Make certain that parts retained from removed component are clean and in correct condition.
(2)Install nut (2) on pressure gage (1).
(3)Install new packing washer (3) and new packing (4) on pressure gage (1).
(4)Clean component interface and/or adjacent area.
(5)Do a visual inspection of component interface and/or adjacent area.
(6)Remove blanking plugs from disconnected line ends.
(7)Install pressure gage (1) on manifold (5).



Yellow Accumulator Pressure Gages
Figure 401

(8)Turn pressure gage (1) so that you can read the pressure easily.
(9)Hold pressure gage (1) and tighten nut (2).

D. Tests
(1)Charge accumulator (Ref. 12-14-29, P. Block 1).
(2)Pressurize Yellow hydraulic reservoir (Ref. 29-14-00, P. Block 301).
(3)Pressurize Yellow hydraulic system (Ref. 29-10-00, P. Block 301).
(4)Check for hydraulic fluid and nitrogen leakage at manifold unions.
(5)Make certain that pressure is stable.
(6)Install cap on valve (6).

E. Close-up
(1)Make certain that working area is clean and clear of tools and miscellaneous items of equipment.
(2)Remove hydraulic fluid container.
(3)Pressurize Yellow hydraulic reservoir (Ref. 29-14-00, P. Block 301).

WARNING : MAKE CERTAIN THAT DOOR TRAVEL RANGES ARE CLEAR.

(4)Close right main gear door (Ref. 32-12-11, P. Block 301).
(5)Remove warning notices.
(6)Close access doors, remove access platform and safety barriers.
(7)Remove all ground handling and maintenance equipment, standard and special tools, together with ground power and replenishing equipment, all access equipment and miscellaneous items.

PRESSURE RELIEF VALVE (3067) - REMOVAL/INSTALLATION

1. Equipment and Material

ITEM	DESIGNATION
A.	Access Platform (2.60 m) (8 ft. 7 in.)
B.	Safety Barriers
C.	Warning Notice
D.	Blanking Plugs
E.	Hydraulic Fluid Container
F.	Circuit Breaker Safety Clips
Referenced Procedures	
- 12-12-29, P. Block 1	Hydraulics
- 29-14-00, P. Block 301	Hydraulic Reservoir Pressurizing System
- 29-21-00, P. Block 301	Green Auxiliary Power - Pressurization
- 29-23-00, P. Block 301	Yellow Auxiliary Power (Power Transfer Unit)
- 24-41-00, P. Block 301	AC External Power Control
- 32-12-11, P. Block 301	Main Gear Main Door - (Ground Door(s) Opening)
- 32-43-00, P. Block 301	Alternate Braking with Anti-Skid

2. Procedure

A. Job Set-Up

(1)On panel 4VU
- make certain that landing gear control lever is in **DOWN** position and prohibit its operation by displaying a warning notice.

(2)Between First Officer's and Third Occupant's seats
- make certain that landing gear Free Fall extension control handle is in Normal position

(3)Open safety and tag the following circuit breakers

PANEL	SERVICE	IDENT.	LOCATION
133VU	HYDRAULIC/ELEC/PUMPS/WARN	4GE	331/V60
133VU	HYDRAULIC-ACCU PRESS/CTL AND CARGO DOOR PUMP	7GX	333/T51

(4)Position access platform.

(5)Position safety barriers prohibiting access to gear door travel range.
WARNING : MAKE CERTAIN THAT THE DOOR TRAVEL RANGES ARE CLEAR.

(6)Open main gear RH door (Ref. 32-12-11, P. Block 301)
WARNING : WHEN DOORS ARE OPEN MAKE CERTAIN THAT SAFETY COLLARS ARE POSITIONED ON DOOR ACTUATING CYLINDERS.

(7)Depressurize Yellow hydraulic reservoir (Ref. 29-14-00, P. Block 301) and prohibit its pressurization by displaying a warning notice
- on panel 429VU to prohibit APU starting,
- on reservoir pressurization connector.

(8)Depressurize Yellow hydraulic system by operating pressure relief valve 3067 located on manifold 3060 (Ref. 29-10-00, P. Block 301) and prohibit its operation by displaying a warning notice

- on Yellow hydraulic system ground connectors.
- on panel 427VU to prohibit energization of PWR TRANSF unit (RH PTU pushbutton switch).

(9)Position hydraulic fluid container.
WARNING : MAKE CERTAIN THAT YELLOW HYDRAULIC SYSTEM IS NOT SUPPLIED.

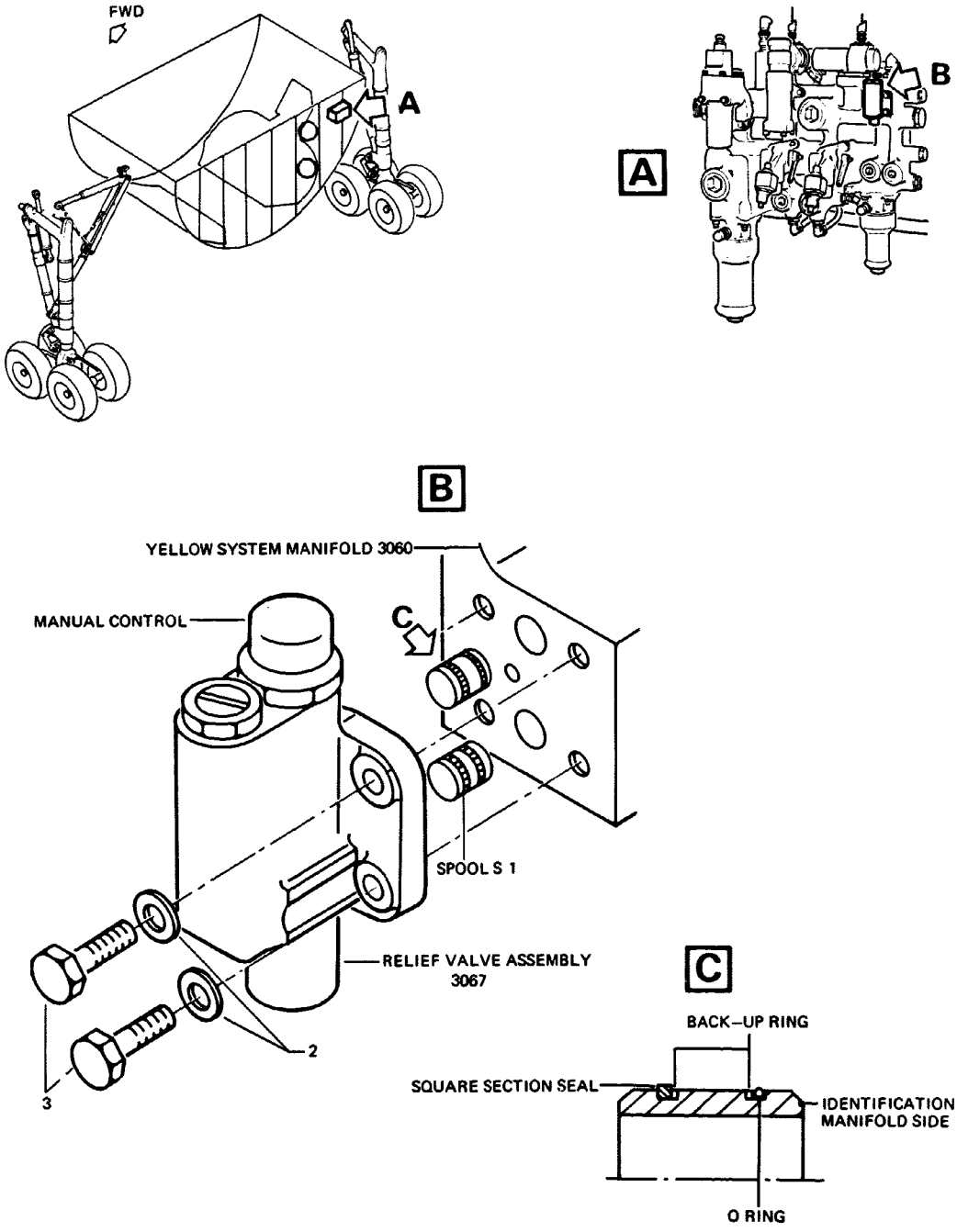
B. Removal
(Ref. Fig. 401)
(1)Cut and remove lockwire and remove screws (3) and washers (2) from valve 3067
(2)Remove valve complete with spools (1).

C. Preparation of Replacement Component
CAUTION : SPOOLS ARE INSTALLED WITH END IDENTIFIED BY A GROOVE MANIFOLD SIDE.
(1)Install new seals in spools (1), lubricate spools with aircraft system hydraulic fluid (Ref. 20-31-00) and install in replacement valve.

D. Installation
(1)Position replacement valve 3067 on the manifold.
(2)Install washers (2) and screws (3). Wirelock screws (3).
(3)Perform bleeding of alternate braking system from the flight compartment (Ref. 32-43-00, P. Block 301).

E. Test
(1)Remove safety clips and tags and close circuit breakers 4GE and 7GX.
(2)Energize the aircraft electrical network (Ref. 24-41-00, P. Block 301).
Make certain that electronics racks ventilation is correct.
(3)Pressurize hydraulic reservoirs (Ref. 29-14-00, P. Block 301).
(4)Pressurize Green auxiliary power system by means of Green electric pumps (Ref. 29-21-00, P. Block 301).
(5)Pressurize Yellow auxiliary power system by means of Green/Yellow transfer unit (Ref. 29-23-00, P. Block 301).
Check valve for external leakage during initial pressurization and upon completion of tests.
(6)Shut down Green/Yellow transfer unit power supply (Ref. 29-23-00, P. Block 301).
(7)Shut down Green electric pump power supply (Ref. 29-21-00, P. Block 301).
(8)De-energize the aircraft electrical network (Ref. 24-41-00, P. Block 301).

F. Close-Up
(1)Remove hydraulic fluid container.
(2)Make certain that working area is clean and clear of tools and miscellaneous items of equipment.
WARNING : MAKE CERTAIN THAT DOOR TRAVEL RANGES ARE CLEAR.
(3)Close landing gear doors (Ref. 32-12-11, P. Block 301).
(4)Replenish hydraulic reservoirs if necessary (Ref. 12-12-29, P. Block 1).
(5)Remove warning notices.
(6)Remove access platform and safety barriers.
(7)Remove all ground handling and maintenance equipment, standard and



Pressure Relief Valve
Figure 401

special tools, replenishing equipment all access equipment and miscellaneous items.

BRAKE YELLOW PRESSURE TRANSMITTER 72GG/73GG-REMOVAL/INSTALLATION

1. Equipment and Materials

ITEM	DESIGNATION
A.	Access Platform (2.60 m) (8 ft. 7 in.)
B.	Safety Barriers
C.	Warning Notice
D.	Blanking Plugs
E.	Hydraulic Fluid Container
F.	Circuit Breaker Safety Clips
G. Material No. 02-003	Hydraulic Fluids (Ref. 20-31-00)
Referenced Procedures	
- 12-12-29, P. Block 1	Hydraulics
- 29-14-00, P. Block 301	Hydraulic Reservoir Pressurizing System
- 29-21-00, P. Block 301	Green Auxiliary Power - Pressurization
- 29-23-00, P. Block 301	Yellow Auxiliary Power (Power Transfer Unit)
- 24-41-00, P. Block 301	AC External Power Control
- 32-12-11, P. Block 301	Main Gear Main Door - (Ground Door(s) Opening)
- 32-43-00, P. Block 301	Alternate Braking with Anti-Skid
- 29-10-00, P. Block 301	Main Hydraulic Power - Pressurization/ Depressurization
- 29-22-00, P. Block 301	Blue Auxiliary Power
R - 32-43-00, P. Block 501	Alternate Braking with Anti-Skid
R - 32-44-00, P. Block 501	Alternate Braking without Anti-Skid

2. Procedure

A. Job Set-Up

(1) On panel 4VU
- make certain that landing gear control lever is in **DOWN** position and prohibit its operation by displaying a warning notice.

(2) Between First Officer's and Third Occupant's seats
- make certain that landing gear Free Fall extension control handle is in Normal position

(3) Open safety and tag the following circuit breakers :

PANEL	SERVICE	IDENT.	LOCATION
133VU	HYDRAULIC-/ELEC/PUMPS/WARN	4GE	331/V60
133VU	HYDRAULIC-ACCU PRESS CTL AND CARGO DOOR PUMP	7GX	333/T51

(4) Position access platform.

(5) Position safety barriers prohibiting access to gear door travel range.
WARNING : MAKE CERTAIN THAT THE DOOR TRAVEL RANGES ARE CLEAR.

(6) Open main gear RH door (Ref. 32-12-11, P. Block 301).
WARNING : WHEN DOORS ARE OPEN MAKE CERTAIN THAT SAFETY COLLARS ARE POSITIONED ON DOOR ACTUATING CYLINDERS.

(7) Depressurize Yellow hydraulic reservoir (Ref. 29-14-00, P. Block 301) and prohibit its pressurization by displaying a warning notice.

- on panel 429VU to prohibit APU starting
- on reservoir pressurization connector.

(8)Depressurize Yellow hydraulic system by operating pressure relief valve 3067 located in zone 147/148 (Ref. 29-10-00, P. Block 301) and prohibit its operation by displaying a warning notice
- on Yellow hydraulic system ground connectors
- on panel 427VU to prohibit energization of PWR TRANSF unit (RH PTU pushbutton switch).

(9)Position hydraulic fluid container.
WARNING : MAKE CERTAIN THAT YELLOW HYDRAULIC SYSTEM IS NOT SUPPLIED.

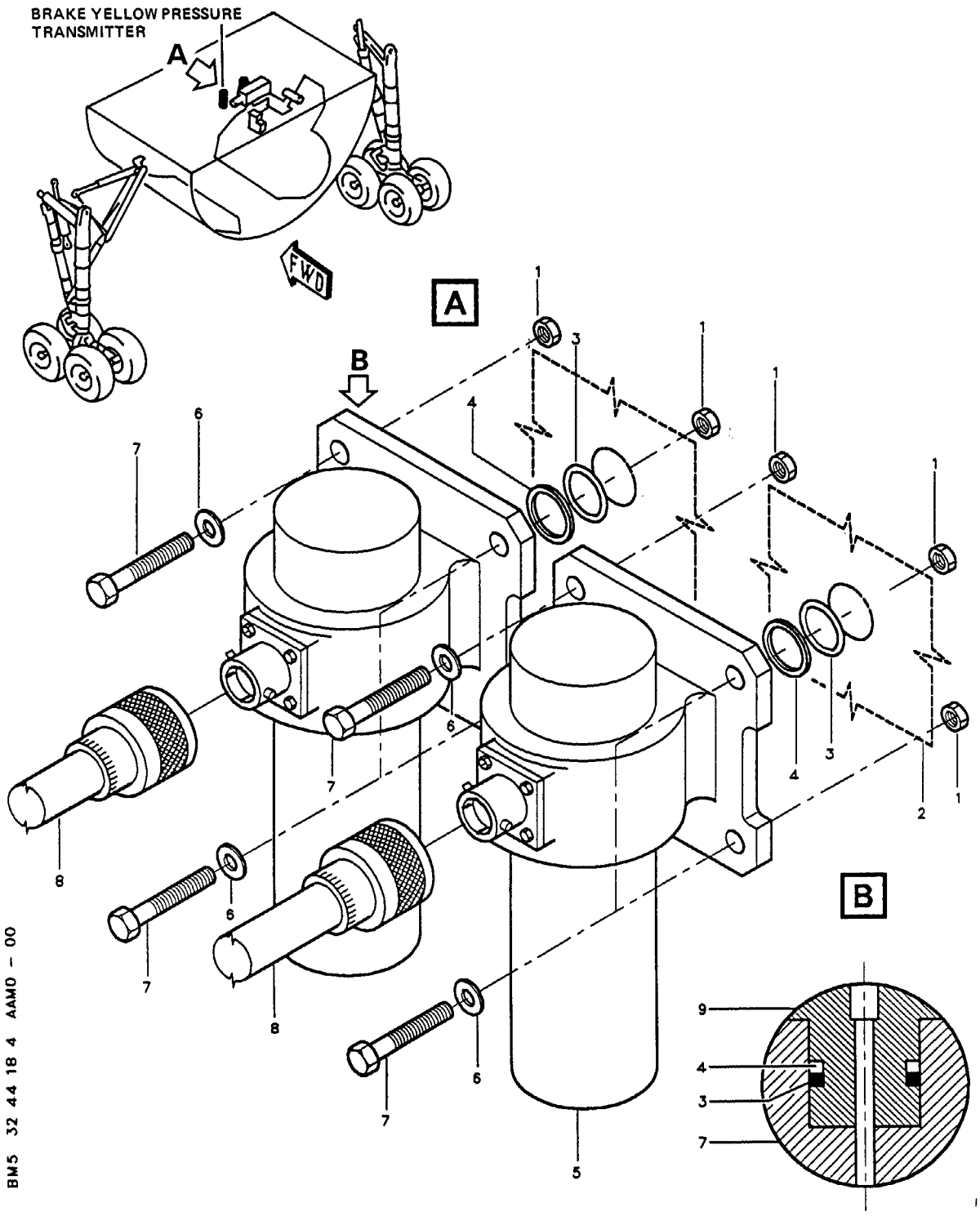
B. Removal
(Ref. Fig. 401)
NOTE : As removal/installation operations are identical for each of the two pressure transmitters, this topic deals with only one pressure transmitter.

(1)Disconnect electrical plug (8).
(2)Remove four nuts (1), four washers (6) and four screws (7).
(3)Remove transmitter (5).
(4)Remove back-up ring (4) and O-ring seal (3) on pressure union (9).

C. Preparation of Replacement Component
(1)Insert new back-up ring (4) on pressure union (9) if necessary.
(2)Insert new O-ring seal (3) on pressure union (9).
NOTE : - Back-up ring (4) can be split for easier installation
- O-ring seal (3) must be lubricated with Material 02-003.

D. Installation
(1)Position replacement transmitter (5) on manifold (2).
(2)Install four washers (6), four screws (7) and four nuts (1).
(3)Tighten four nuts (1).
(4)Connect electrical plug (8).

E. Test
(1)Remove safety clips and tags and close circuit breaker 4GE and 7GX.
(2)Energize the aircraft electrical network (Ref. 24-41-00, P. Block 301). Make certain that electronics racks ventilation is correct.
(3)Perform bleeding of alternate braking system from the flight compartment (Ref. 32-43-00, P. Block 301).
(4)Pressurize hydraulic reservoir associated with removed pressure transmitter (Ref. 29-14-00, P. Block 301).
(5)Pressurize hydraulic system associated with removed pressure transmitter using hydraulic ground power cart (Ref. 29-10-00, P. Block 301) or auxiliary power (Ref. 29-21-00, P. Block 301, 29-22-00, P. Block 301, 29-23-00, P. Block 301).
R (6)Carry out an Alternate braking with and without anti-skid operational
R test (Ref. 32-43-00, P. Block 501) (Ref. 32-44-00, P. Block 501).
R (7)Check for hydraulic fluid leakage at pressure transmitter.
R (8)De-energize the aircraft electrical network (Ref. 24-41-00, P. Block 301).



Brake Yellow Pressure Transmitter
Figure 401

F. Close-Up
(1)Remove hydraulic fluid container.
(2)Make certain that working area is clean and clear of tools and miscellaneous items of equipment.
WARNING : MAKE CERTAIN THAT DOOR TRAVEL RANGES ARE CLEAR.
(3)Close landing gear doors (Ref. 32-12-11, P. Block 301).
(4)Replenish hydraulic reservoirs if necessary (Ref. 12-12-29, P. Block 1).
(5)Remove warning notices.
(6)Remove access platform and safety barriers.
(7)Remove all ground handling and maintenance equipment, standard and special tools, replenishing equipment all access equipment and miscellaneous items.

INDICATOR - BRAKE YELLOW PRESSURE TRIPLE (71GG) - REMOVAL/INSTALLATION

1. Equipment and Materials

ITEM	DESIGNATION
A.	Circuit Breaker Safety Clips and Tags
B.	Electrical Connector Blanking Caps

Referenced Procedures

- 32-43-00, P. Block 501	Operational Test of Alternate Braking System
- 32-45-00, P. Block 501	Operational Test of Parking Brake System

2. Procedure

A. Job Set-Up

(1)Open, safety and tag the following circuit breaker :

PANEL	SERVICE	IDENT.	LOCATION
133VU	YELLOW BRK/TRIPLE PRESS/IND	70GG	333/T60

B. Removal

(Ref. Fig. 401)

(1)Loosen the two screws (6) on clamp (2). Do not remove them.
(2)Pull indicator (5) from panel (1).
(3)Disconnect electrical connector (3).
(4)Remove indicator (5).
(5)Cap electrical connector (3) and receptacle (4).

C. Installation

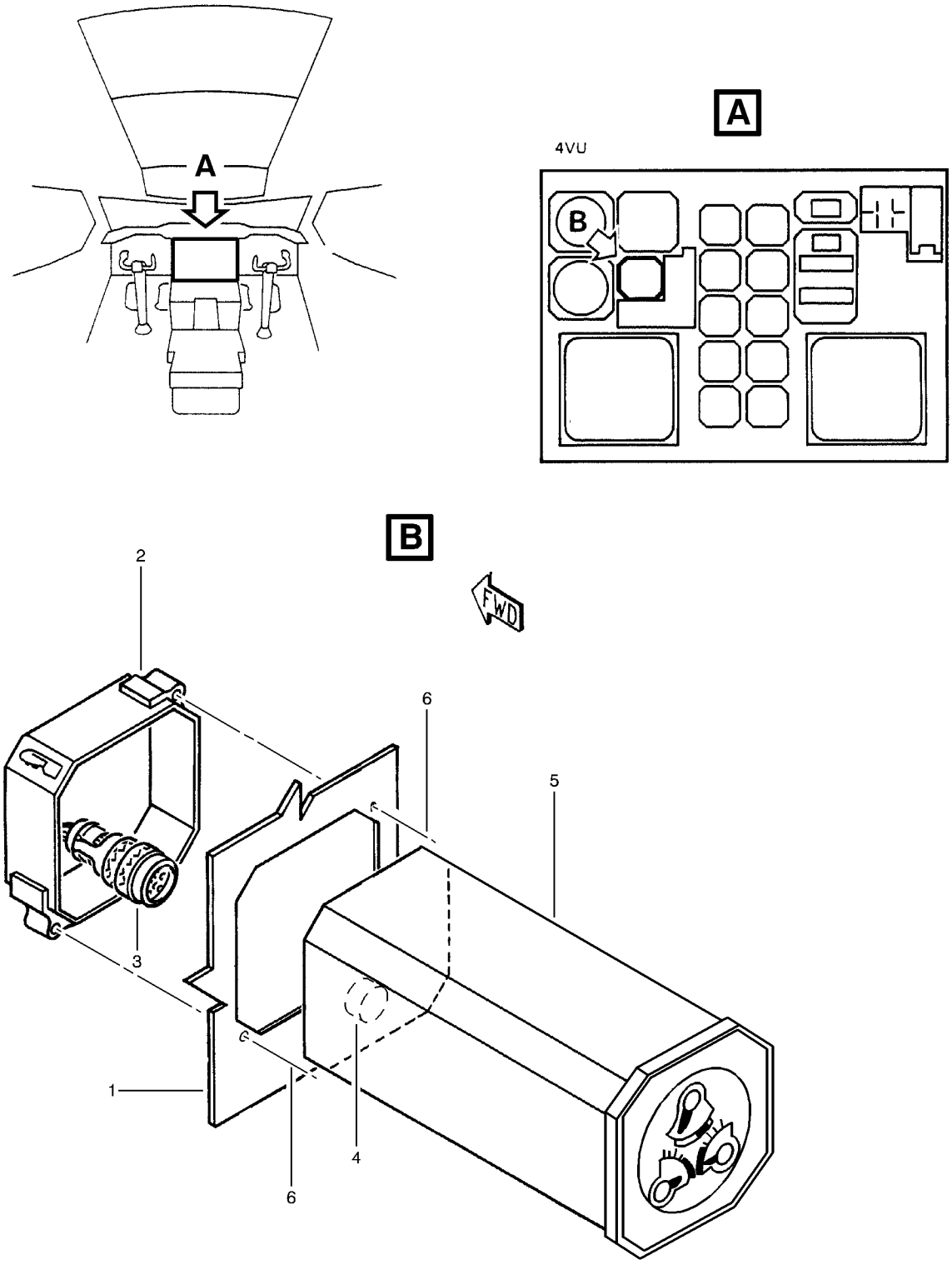
(1)Remove blanking caps from electrical connector (3) and receptacle (4).
(2)Connect electrical connector (3) to indicator (5).
(3)Install indicator (5) in panel (1).
(4)Tighten the two screws (6).
(5)Remove safety clip and tag and close circuit breaker 70GG.

D. Operational Tests

(1)Perform operational test of alternate braking system (Ref. 32-43-00, P. Block 501).
(2)Perform operational test of parking brake system (Ref. 32-45-00, P. Block 501).

E. Close-up

Make certain that working area is clean and clear of tools and miscellanous items of equipment.



Brake Yellow Pressure Triple Indicator
Figure 401

BRAKE YELLOW ACCUMULATOR PRESSURE TRANSMITTER (74GG)
REMOVAL/INSTALLATION

1. Equipment and Material

ITEM	DESIGNATION
A.	Access Platform (2.60 m) (8 ft. 7 in.)
B.	Safety Barriers
C.	Warning Notice
D.	Blanking Plugs
E.	Hydraulic Fluid Container
F.	Circuit Breaker Safety Clips
G.	Lockwire
H. Material No. 02-003	Hydraulic Fluids (Ref. 20-31-00)
Referenced Procedures	
- 12-12-29, P. Block 1	Hydraulics
- 24-41-00, P. Block 301	AC External Power Control
- 29-10-00, P. Block 301	Main Hydraulic Power - Pressurization
- 29-14-00, P. Block 301	Hydraulic Reservoir Pressurizing System
- 29-21-00, P. Block 301	Green Auxiliary Power - Pressurization
- 29-22-00, P. Block 301	Blue Auxiliary Power
- 29-23-00, P. Block 301	Yellow Auxiliary Power (Power Transfer Unit)
- 32-12-11, P. Block 301	Main Gear Main Door - (Ground Door(s) Opening)
- 32-43-00, P. Block 301	Alternate Braking with Anti-Skid Depressurization
- 32-43-00, P. Block 501	Alternate Braking with Anti-Skid
- 32-44-00, P. Block 501	Alternate Braking without Anti-Skid

2. Procedure

A. Job Set-Up

(1)On panel 4VU :

- make certain that landing gear control lever is in **DOWN** position and prohibit its operation by displaying a warning notice.

(2)Between First Officer's and Third Occupant's seats :

- make certain that landing gear Free Fall extension control handle is in normal position.

(3)Open, safety and tag the following circuit breakers :

PANEL	SERVICE	IDENT.	LOCATION
133VU	HYDRAULIC/ELEC/PUMPS/WARN	4GE	331/V60
133VU	HYDRAULIC-ACCU PRESS/CTL AND CARGO DOOR PUMP	7GX	333/T51

(4)Position access platform.

(5)Position safety barriers prohibiting access to gear door travel range.

WARNING : MAKE CERTAIN THAT THE DOOR TRAVEL RANGES ARE CLEAR.

(6)Open main gear right door (Ref. 32-12-11, P. Block 301).

WARNING : WHEN DOORS ARE OPEN MAKE CERTAIN THAT SAFETY COLLARS ARE POSITIONED ON DOOR ACTUATING CYLINDERS.

(7)Depressurize Yellow hydraulic reservoir (Ref. 29-14-00, P. Block 301) and prohibit its pressurization by displaying a warning notice :
- on panel 429VU to prohibit APU starting
- on reservoir pressurization connector.

(8)Depressurize Yellow hydraulic system by operating pressure relief valve 3067 located on manifold 3060 (Ref. 29-10-00, P. Block 301) and prohibit its operation by displaying a warning notice :
- on Yellow hydraulic system ground connectors
- on panel 427VU to prohibit energization of power transfer unit (RH PTU pushbutton switch).

(9)Position hydraulic fluid container.

WARNING : MAKE CERTAIN THAT YELLOW HYDRAULIC SYSTEM IS NOT SUPPLIED.

B. Removal
(Ref. Fig. 401)

(1)Disconnect electrical plug (8).
(2)Cut, remove and discard lockwire.
(3)Remove the four screws (7), the four washers (6) from brake Yellow accumulator pressure transmitter (5).
(4)Remove brake Yellow pressure transmitter (5).
(5)Remove back-up ring (4) and O-ring seal (3) from pressure union (1).

C. Preparation of Replacement Component

(1)Insert new back-up ring (4) on pressure union (1) if necessary.
(2)Insert new O-ring seal (3) on pressure union (1).

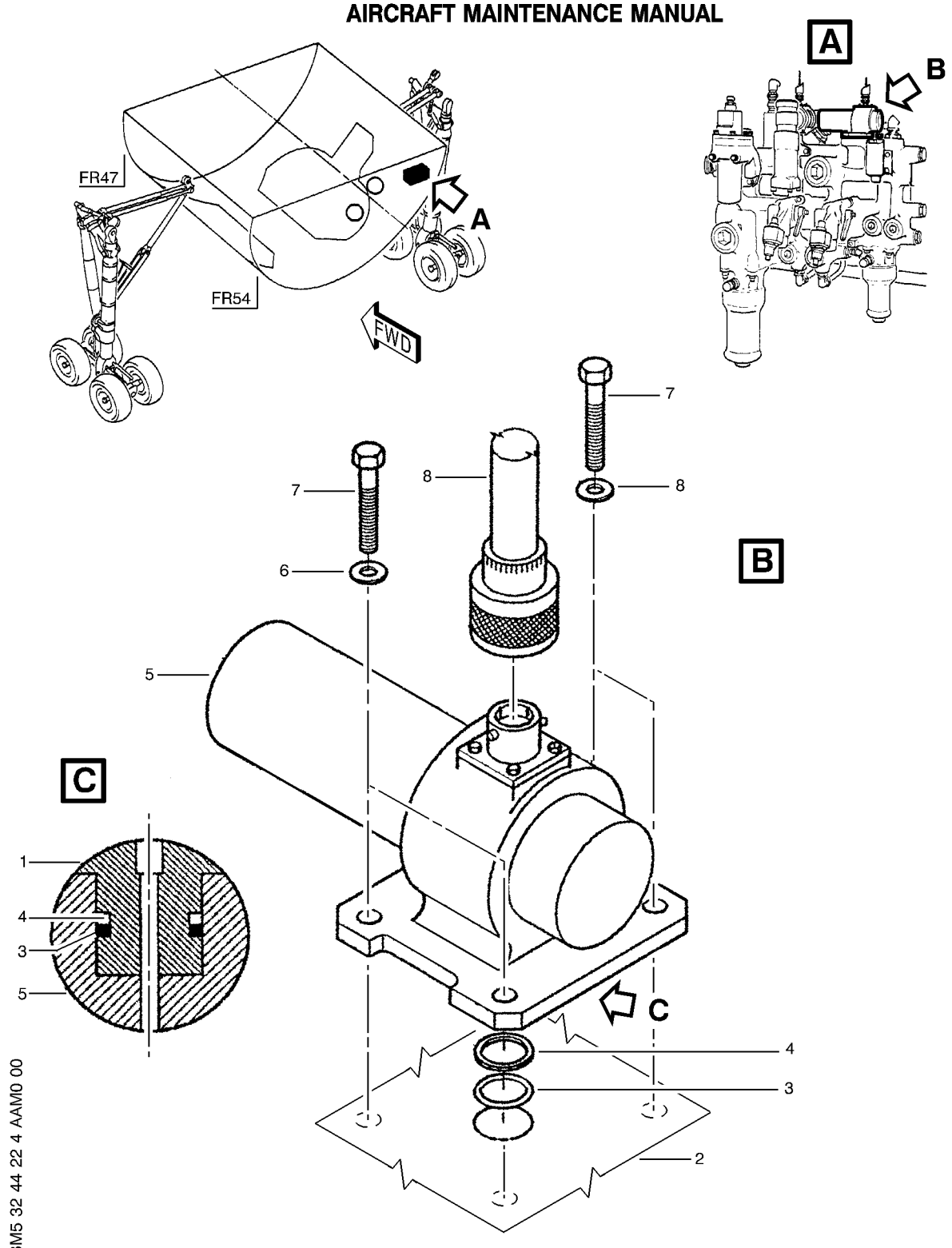
NOTE : - Back-up ring (4) can be split for easier installation
- O-ring seal (3) must be lubricated with Hydraulic Fluids (Material No. 02-003).

D. Installation

(1)Position replacement brake Yellow accumulator pressure transmitter (5) on manifold (2).
(2)Install the four washers (6) and the four screws (7).
(3)Tighten the four screws (7) and safety them with lockwire.
(4)Connect electrical plug (8).

E. Test

(1)Remove safety clips and tags and close circuit breakers 4GE and 7GX.
(2)Energize the aircraft electrical network (Ref. 24-41-00, P. Block 301). Make certain that electronics racks ventilation is correct.
(3)Perform bleeding of alternate braking system from the flight compartment (Ref. 32-43-00, P. Block 301).
(4)Pressurize hydraulic reservoir associated with removed pressure transmitter (Ref. 29-14-00, P. Block 301).
(5)Pressurize hydraulic system associated with removed pressure transmitter using hydraulic ground power cart (Ref. 29-10-00, P. Block 301) or



Brake Yellow Accumulator Pressure Transmitter
Figure 401

auxiliary power (Ref. 29-21-00, P. Block 301, 29-22-00, P. Block 301, 29-23-00, P. Block 301).

(6)Carry out Alternate braking with and without anti-skid operational tests (Ref. 32-43-00, P. Block 501) and (Ref. 32-44-00, P. Block 501).

(7)Check for hydraulic fluid leakage at pressure transmitter.

(8)De-energize the aircraft electrical network (Ref. 24-41-00, P. Block 301).

F. Close-Up

(1)Remove hydraulic fluid container.

(2)Make certain that working area is clean and clear of tools and miscellaneous items of equipment.

WARNING : MAKE CERTAIN THAT DOOR TRAVEL RANGES ARE CLEAR.

(3)Close main gear right door (Ref. 32-12-11, P. Block 301).

(4)Replenish hydraulic reservoirs if necessary (Ref. 12-12-29, P. Block 1).

(5)Remove warning notices.

(6)Remove access platform and safety barriers.

(7)Remove all ground handling and maintenance equipment, standard and special tools, replenishing equipment, all access equipment and miscellaneous items.

PARKING BRAKE - DESCRIPTION AND OPERATION

1. General

(Ref. Fig. 001)

Actuation of the **PARKING BRAKE** control handle deactivates the other brake modes and supplies the brakes with Yellow high pressure or brake Yellow power accumulator pressure limited at 145 bars (2102 psi). The return lines are isolated to ensure an autonomy of at least 12 hours. The **TO CONFIG** warning reminds the flight crew to release the **PARKING BRAKE** control handle when one engine is full throttle.

2. Component Location

(Ref. Fig. 002)

(Ref. Fig. 003, 004, 005)

FIN	FUNCTIONAL DESIGNATION	PANEL	ZONE	ACCESS DOOR	ATA REF.
3125	ACCU-BRK YELLOW POWER		148		32-44-11
3126	ACCU-BRK YELLOW POWER		148		32-44-11
3127	CHARGING VALVE-Y PWR BRK ACCU		148		
3128	PRESS GAGE-Y PWR BRK ACCU		148		
3292	LIMITER-PARKING BRK PRESS		147		32-45-15
3293	VALVE-PARKING BRK OPERATED		147		32-45-14
3294	SHUTTLE VALVE-BRK YELLOW PRESS DUAL		147		32-45-16
3305	CHECK VALVE-PARKING BRK RTN				
3309	SELECTOR-PARKING BRAKE		124		32-45-12
7GG	HANDLE-PARKING BRAKE CTL		211		32-45-11
71GG	IND-BRK YELLOW PRESS TRIPLE	4VU	211		
72GG	XMTR-BRK YELLOW PRESS, R		147		
73GG	XMTR-BRK YELLOW PRESS, L		148		
74GG	XMTR-BRK YELLOW ACCU PRESS		148		

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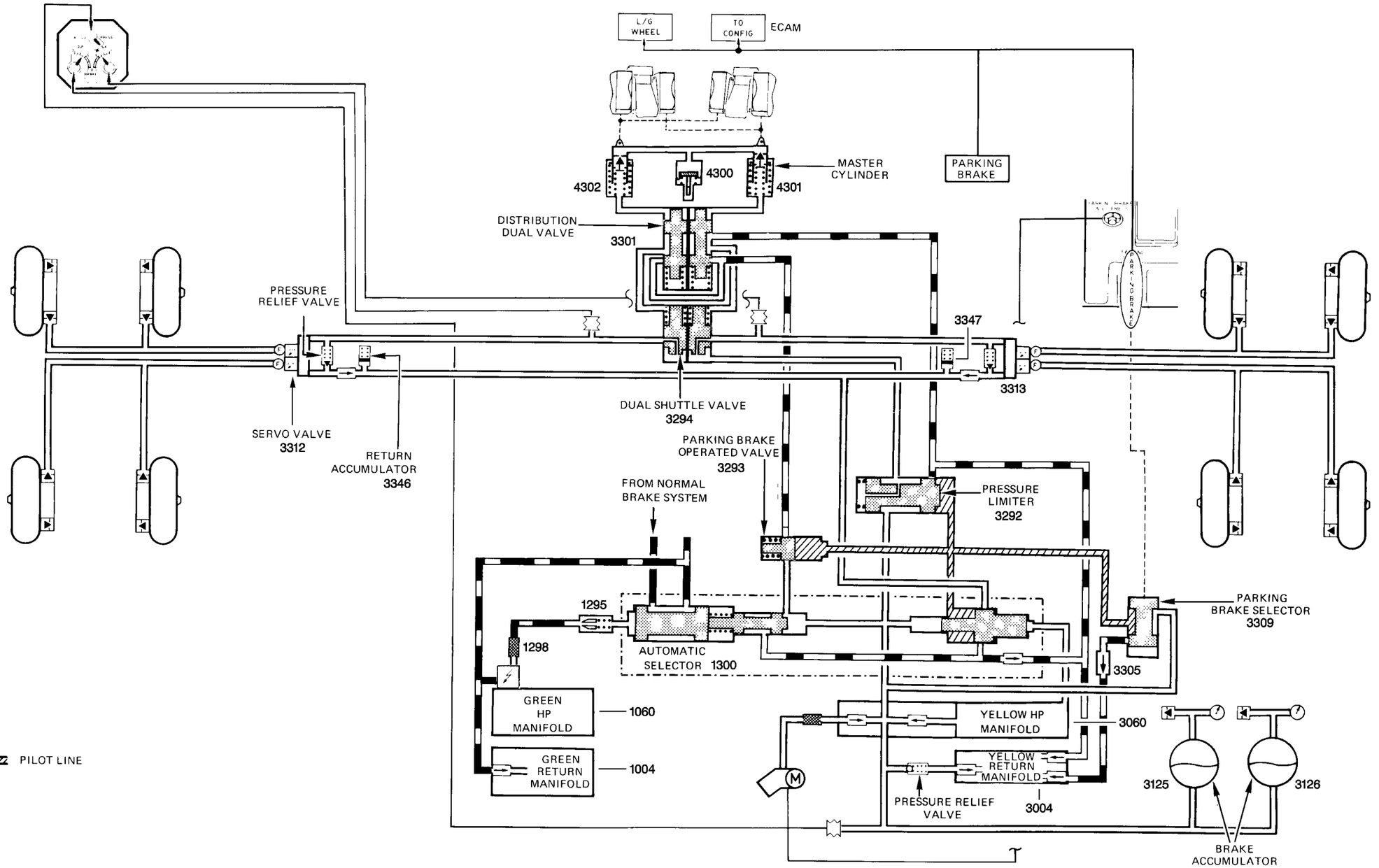

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Parking Brake - Schematic
Figure 001

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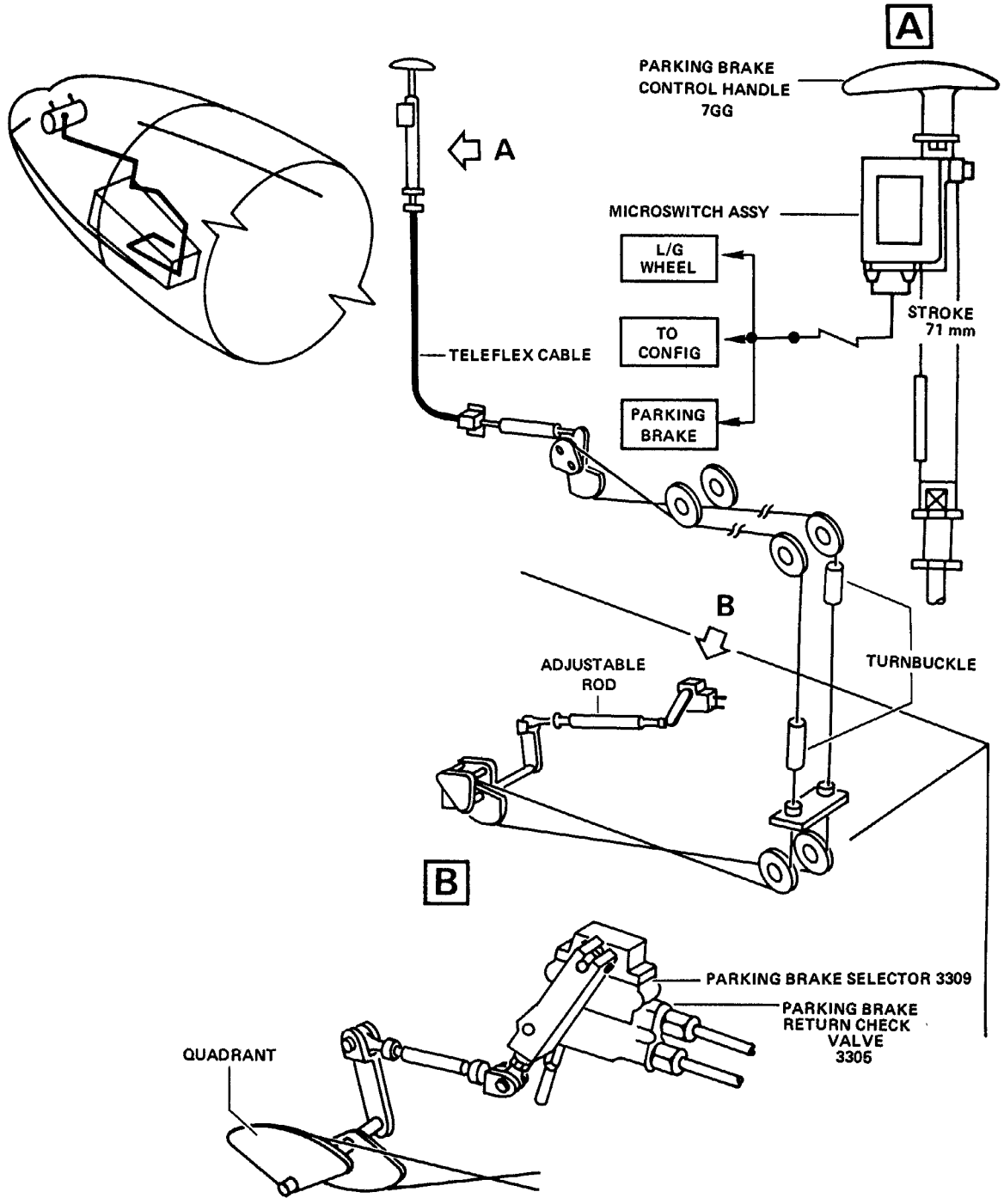

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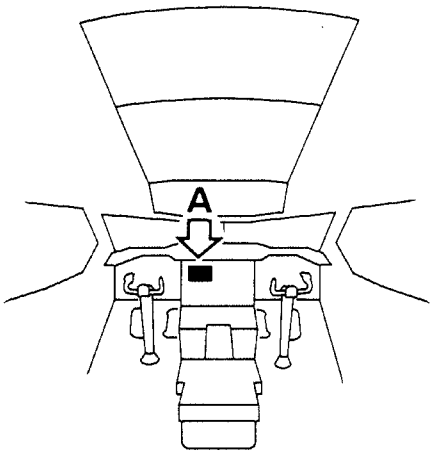
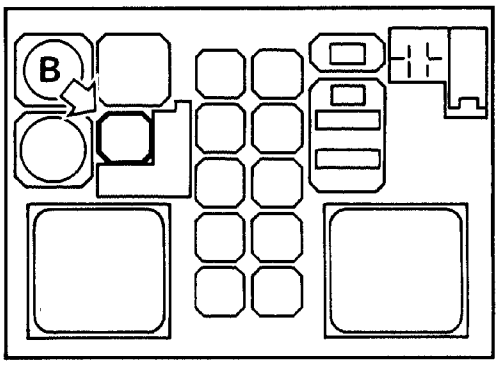
Parking Brake Control Components
Figure 002

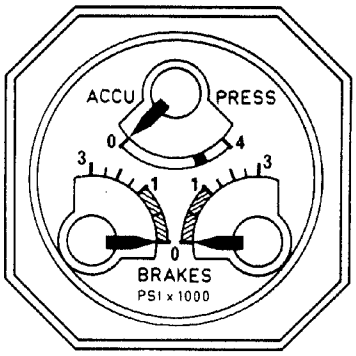


A

4VU



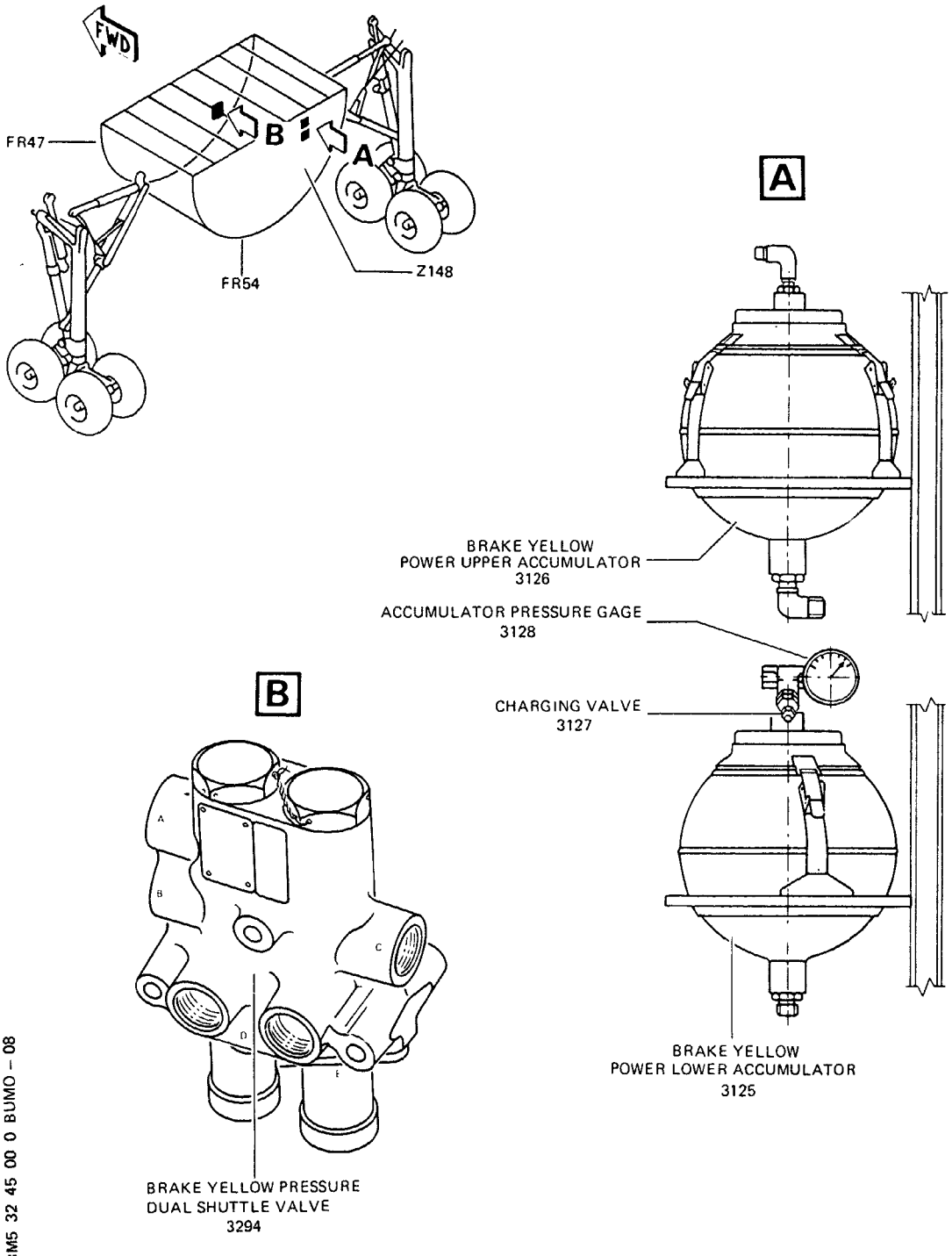
B



71GG
BRAKE YELLOW PRESSURE
TRIPLE INDICATOR

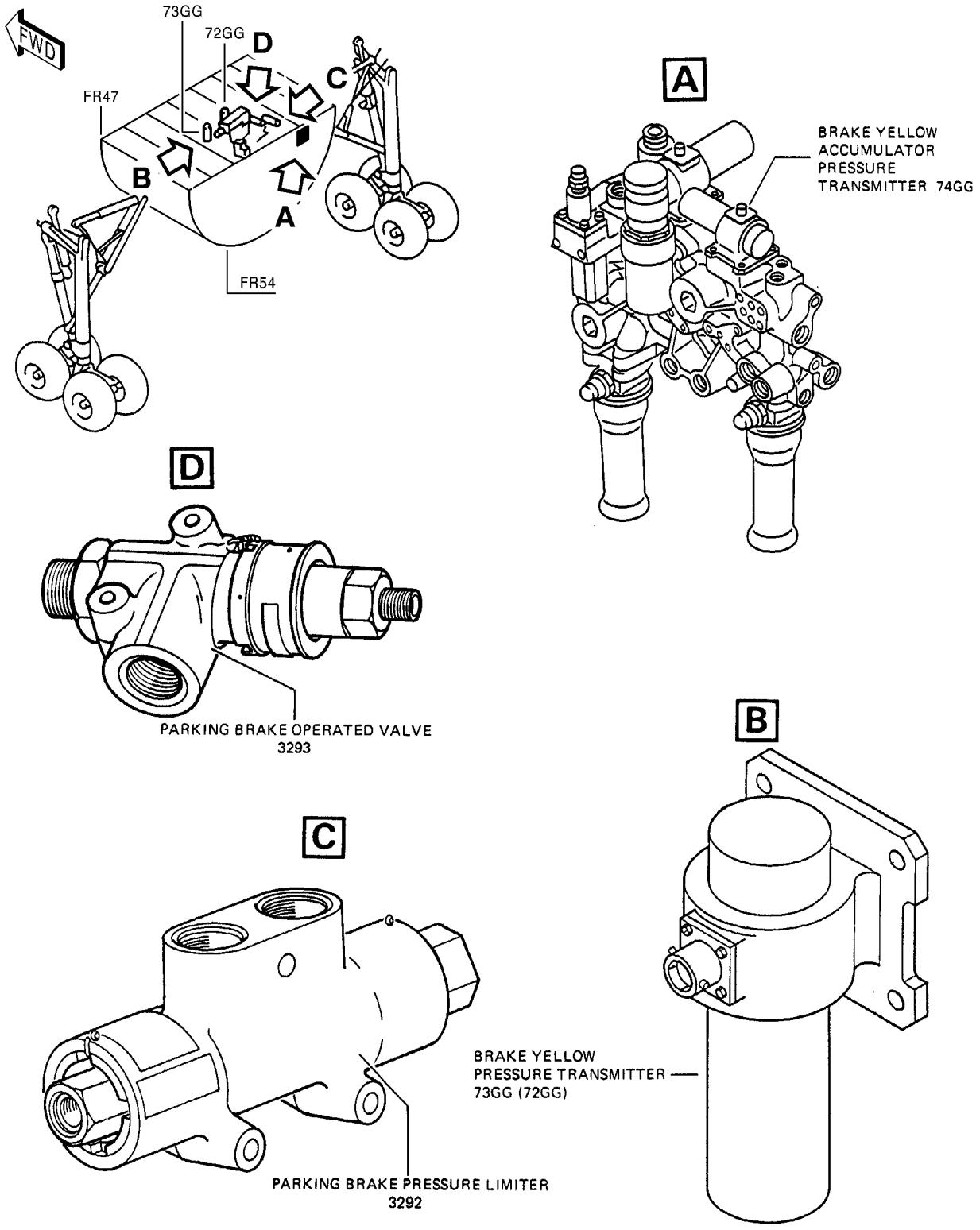
BM5 32 45 00 0 BTM0 – 00

Control and Indicating Components - Flight Compartment
Figure 003



BM5 32 45 00 0 BUMO – 08

Hydraulic Components - Zone 148
Figure 004



Hydraulic Components - Zone 148
Figure 005

R

3. Component Description

A. PARKING BRAKE Control Handle and Control Cables (Ref. Fig. 006)
(Ref. Fig. 006)
(Ref. Fig. 002)
The Parking brake system is controlled through a two position control handle that can be locked in the on (brake applied) position.
The handle is located on the center pedestal and controls :
- the Parking brake selector, located in the nose gear well, by means of control cables.
- two microswitch contacts which isolate the Normal brake system and provide Parking brake applied indication.

Sealing is such that the system is capable of maintaining the pressure at a value greater than 100 bars (1450 psi) for 12 hours.

B. Parking Brake Selector (Ref. Fig. 007)
The Parking brake selector is of the three-way type.
In the Parking brake released position the service port C is connected to return B.
In the Parking brake applied position, accumulator pressure at A is ported to C resulting in :
- isolation of the Alternate brake servovalve reservoir return by activation of the brake automatic selector secondary slide valve
- operation of the Parking brake operated valve
- operation of the Parking brake pressure limiter.

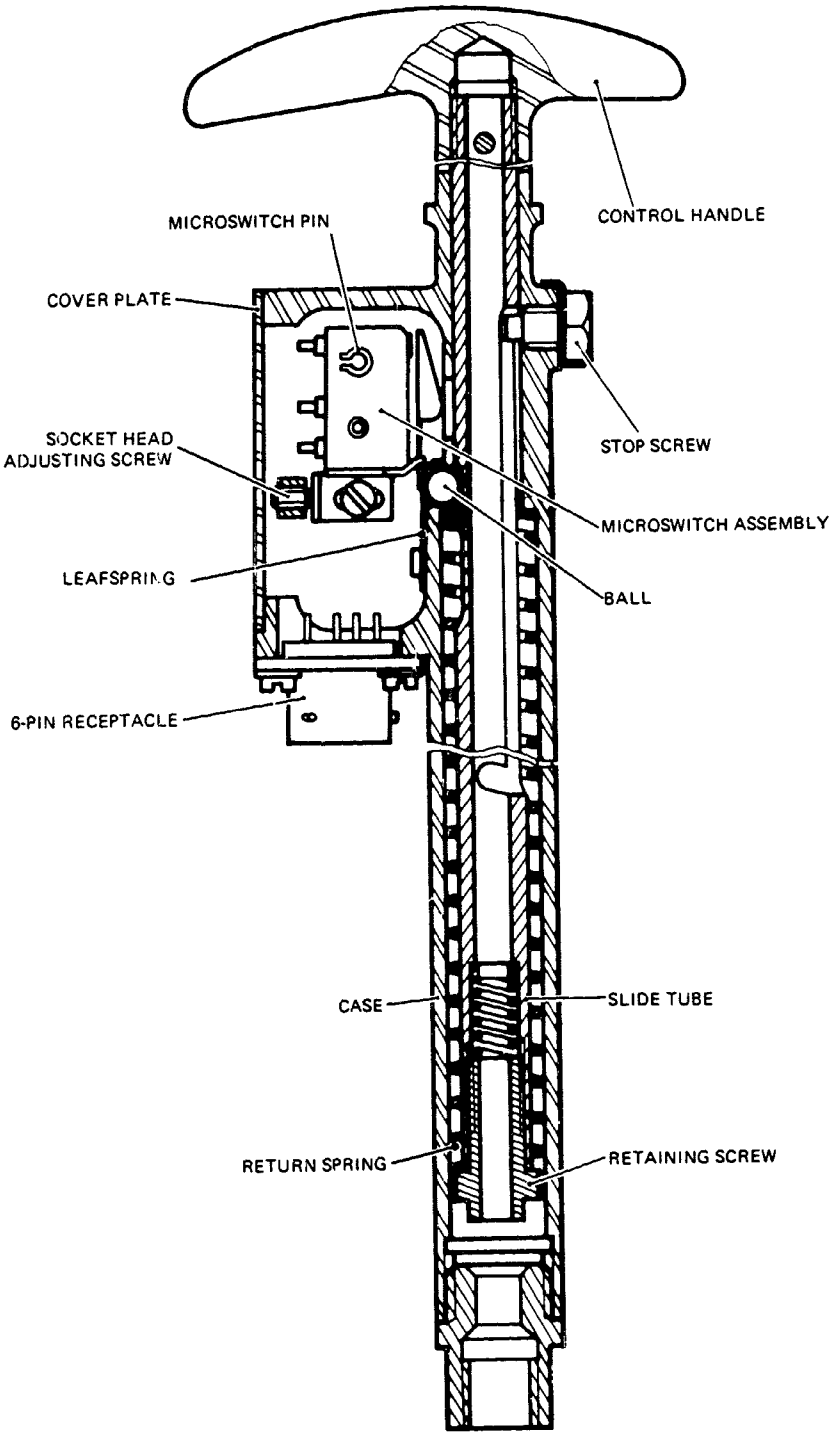
C. Parking Brake Operated Valve (Ref. Fig. 008)
The Parking brake operated valve is installed between the brake automatic selector and the distribution dual valve and shuts off supply to the Alternate brake system to prevent leakage through the distribution dual valve.
Parking brake pressure enters the valve through port C.

D. Parking Brake Pressure Limiter (Ref. Fig. 009)
This valve serves to limit Parking brake pressure to 145 bars (2102 psi).
When control pressure builds up at A, a valve is displaced and supply pressure at C (from the automatic selector) is ported to service port B (to the brakes).
When the pressure at B is sufficiently high, the pressure pushes back the control piston causing the valve to close thus isolating B from C and if necessary expelling excess fluid from B to reservoir return D.

4. Operation and Indicating

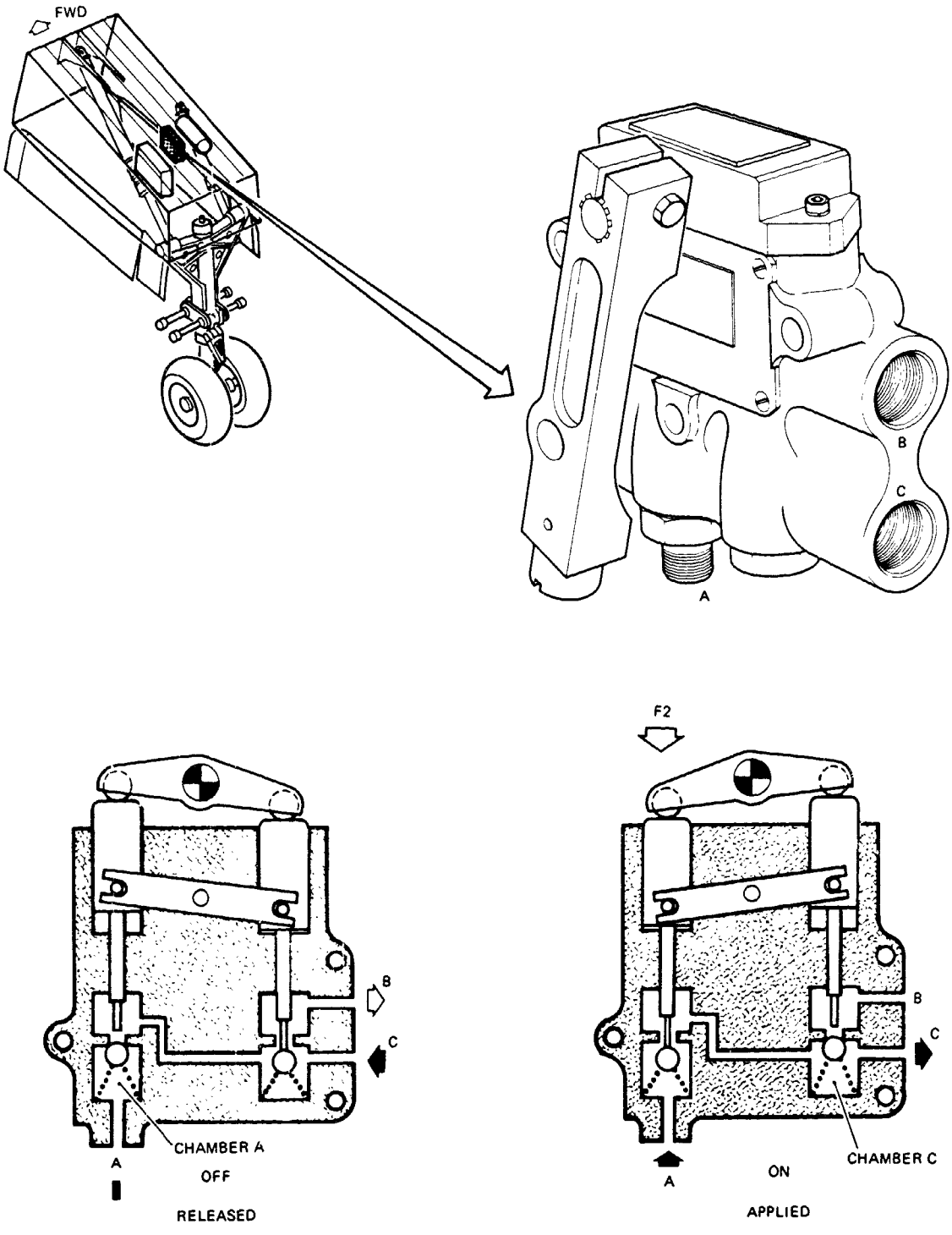
A. CAPT and F/O Main Instrument Panels 3VU and 5VU
The MASTER WARN light comes on when the PARKING BRAKE control handle is in the brake applied position and one throttle control lever in take off power position.

B. Left ECAM Display Unit
The BRAKES page is displayed during phase 3.

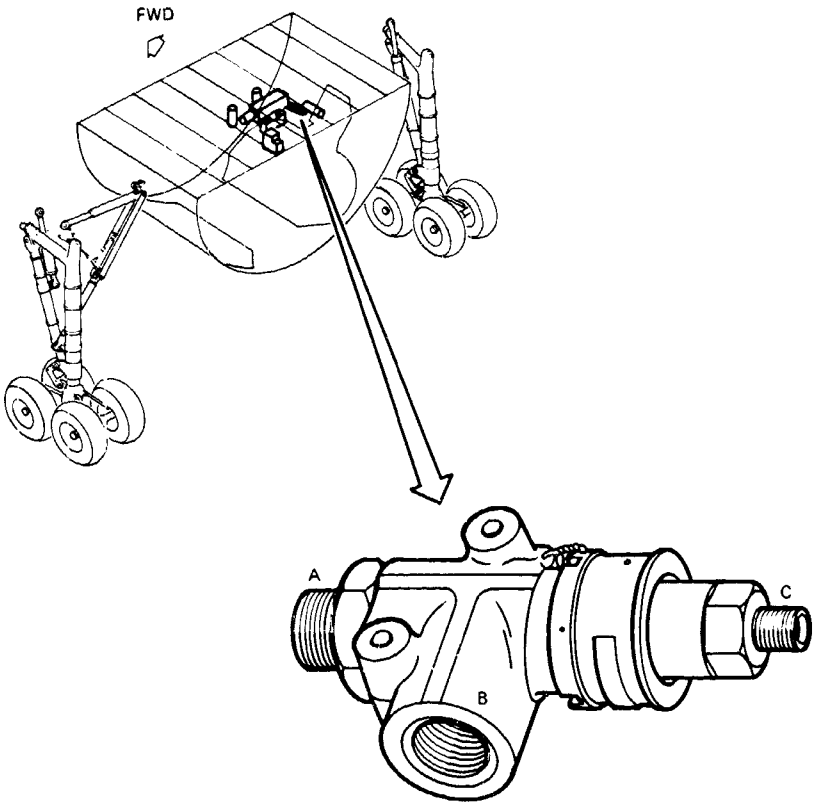


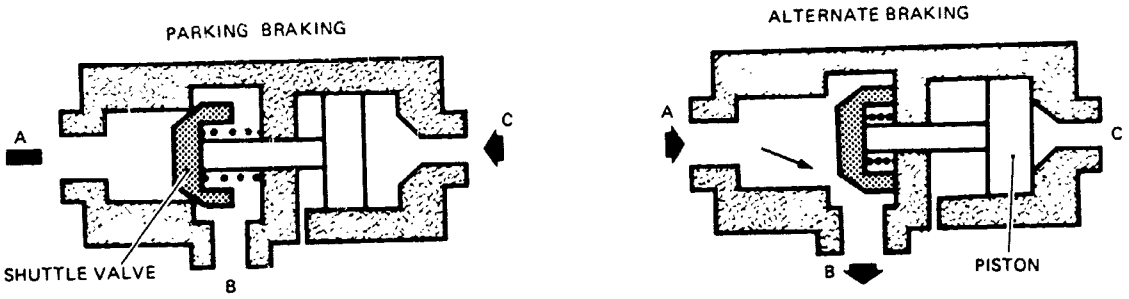
BM5 32 45 00 0 AEMO

Control Handle
Figure 006



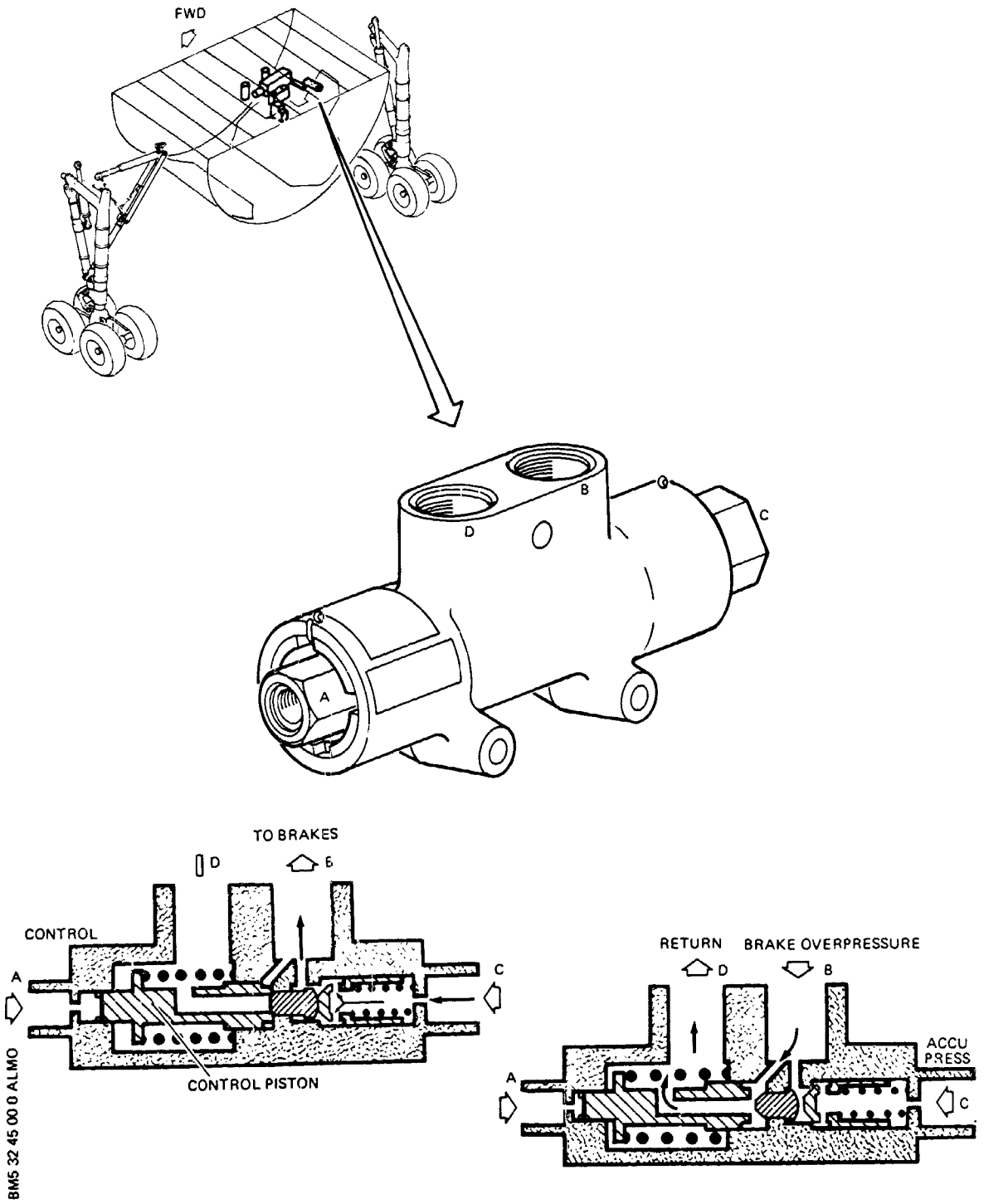
Parking Brake Selector
Figure 007





BM5 32 45 00 0 AJMO

Parking Brake Operated Valve
Figure 008



Parking Brake Pressure Limiter
Figure 009

C. Interphone Box 3 WC
An Amber **PARKING BRAKE** indicator light comes on when the **PARKING BRAKE** control handle is in the brake applied position.

1. Adjustment

WARNING : CHECK THAT THE LANDING GEAR GROUND SAFETIES INCLUDING WHEEL CHOCKS ARE IN POSITION.
BEFORE APPLYING OR RELIEVING HYDRAULIC SYSTEM PRESSURE, MAKE CERTAIN THAT THE TRAVEL RANGES OF THE CONTROL SURFACES ARE CLEAR.
BEFORE PRESSURIZING HYDRAULIC SYSTEMS, CHECK THAT ALL CONTROLS ARE SET TO CORRESPOND WITH THE ACTUAL POSITION OF THE SERVICES THEY OPERATE.
BEFORE POWER IS SUPPLIED TO THE AIRCRAFT MAKE CERTAIN THAT ELECTRICAL CIRCUITS UPON WHICH WORK IS IN PROGRESS ARE ISOLATED.
BEFORE PRESSURIZING HYDRAULIC SYSTEMS, MAKE CERTAIN THAT HYDRAULIC SYSTEM UNDER MAINTENANCE HAS BEEN ISOLATED.

A. Reason for the Job

(1)Adjustment of parking braking mechanical control.

B. Equipment and Materials

	ITEM	DESIGNATION
	(1)98A32301005000	Pin - Rigging, Parking Brake Selector
	(2)98A32301020000	Plate - Rigging, Parking Brake Control
R	(3)98A27901009000	Pin - Rigging, Parking Brake Control
R	(4)98A32301002000	Pin - Rigging, Parking Brake Control
R	(5)	Wheel Chocks
R	(6)	Warning Notice
R	(7)	Access Platform 2.60 m. (8ft. 7 in.)
R	(8)	Safety Barriers
R	(9)	Tensiometer
	Referenced Procedures	
	- 12-12-29, P. Block 1	Hydraulics
	- 24-41-00, P. Block 301	AC External Power Control
	- 29-10-00, P. Block 301	Main Hydraulic Power - Pressurization/Depressurization
	- 29-14-00, P. Block 301	Hydraulic Reservoir Pressurizing System
	- 29-21-00, P. Block 301	Green Auxiliary System
	- 32-12-11, P. Block 301	Main Gear Main Door - (Ground Door(s) Opening)
	- 32-22-11, P. Block 301	Nose Gear Main Door - (Ground Door(s) Opening)

C. Procedure

(1)Job set-up

(a)Make certain that wheel chocks are in position.

(b)On panel 4VU

- make certain that landing gear control lever is in **DOWN** position and prohibit its operation by displaying a warning notice.

(c)Between First Officer's and 3rd Occupant's seats

- make certain that landing gear Free Fall extension control handle is in Normal position.

(d)On panel 9VU

- make certain that **PARKING BRAKE** control handle is in Normal released position.

(e)Position access platform.

(f)Position safety barriers prohibiting access to door travel ranges.

WARNING : MAKE CERTAIN THAT THE DOOR TRAVEL RANGES ARE CLEAR.

(g)Open right main gear door and nose gear doors. (Ref. 32-12-11, P. Block 301 and 32-22-11, P. Block 301).

WARNING : WHEN DOORS ARE OPEN MAKE CERTAIN THAT SAFETY COLLARS ARE POSITIONED ON DOOR ACTUATING CYLINDERS.

(h)Depressurize Yellow hydraulic system (Ref. 29-10-00, P. Block 301) and prohibit its pressurization by displaying a warning notice :

- on Yellow hydraulic system ground connectors
- on panel 427VU to prohibit energization of power transfer unit (right PTU) pushbutton switch).

(j)Depressurize Yellow hydraulic reservoir (Ref. 29-14-00, P. Block 301) and prohibit its pressurization by displaying a warning notice :

- on panel 429VU to prohibit APU starting
- on reservoir pressurization connector.

(k)Depressurize brake power accumulators 3125 and 3126 through manual control on pressure relief valve 3067 located on pressure manifold 3060 and prohibit pressurization by displaying a warning notice on panel 9VU, on **PARKING BRAKE/ACCU PRESS** pushbutton switch.

D. Adjustment

(Ref. Fig. 501, 502)

(1)Adjustment of control system between handle and cable quadrant (3) (Ref. Fig. 501).

(a)In zone 122 at STA949 (FR9)

- with **PARKING BRAKE** control handle in Normal (released) position, check that rigging pin 98A27901009000 can be readily inserted in the casing and cable quadrant (3) holes.

(b)If rigging pin cannot be readily inserted :

1 Adjust length of link rod (2) so that the rigging pin can be readily inserted in rigging holes.

2 Tighten and safety the link rod (2) end fitting.

3 Check that rigging pin can still be readily inserted.

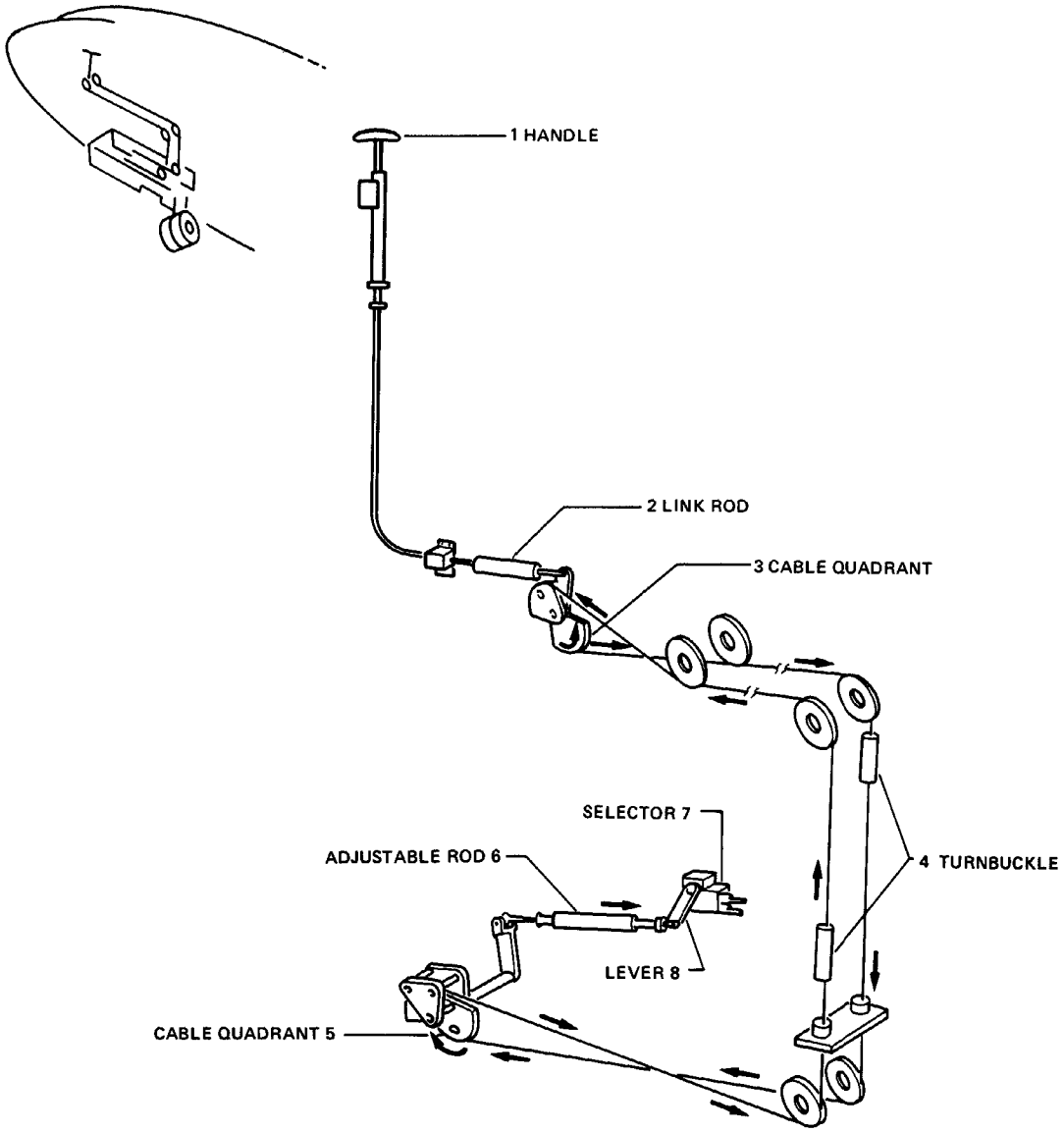
4 Remove rigging pin.

(2)Adjustment of cable tension (Ref. Fig. 502)

(a)Rig cable quadrant (3) with rigging pin 98A27901009000.

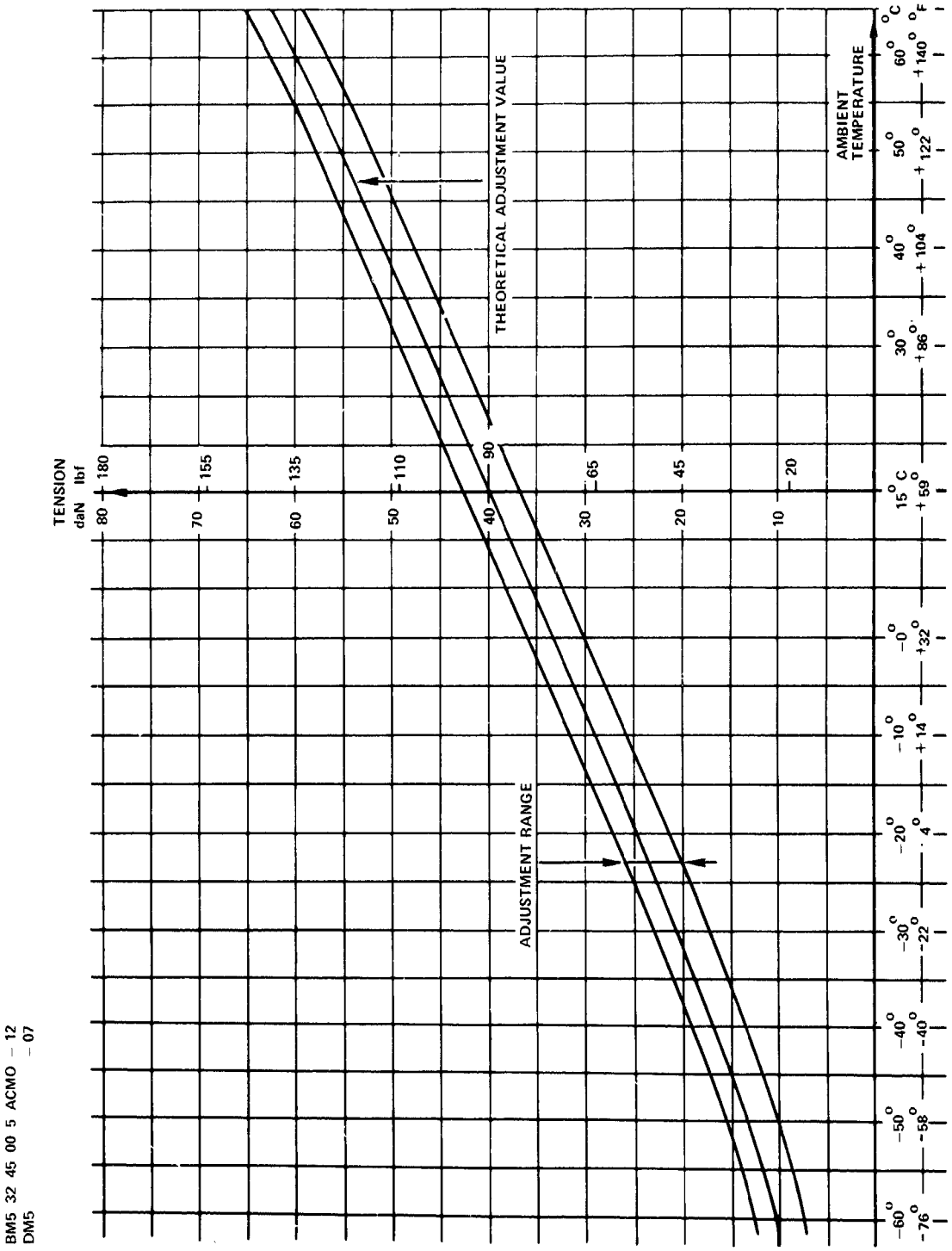
(b)In zone 124 at STA1187 (FR14A)

- make certain that cable quadrant (5) can be rigged with rigging pin



BM5 32 45 00 5 AAMO – 12
DM5 – 07

Parking Braking - Mechanical Control
Figure 501



BM5 32 45 00 5 ACMO - 12
DM5 - 07

Parking Braking - Cable Adjustment Chart
Figure 502

R 98A32301002000.

(c)If rigging pin cannot be readily inserted :

1 Release the two cable turnbuckles (4) located in the vertical section of the control cable run.

2 Adjust both cable runs and balance tension so that the two rigging pins can be readily inserted.

3 Adjust tension of both cable runs to the value corresponding to ambient temperature using a tensiometer. Tension versus temperature is depicted on the chart (Ref. Fig. 502)

4 Remove the two rigging pins (98A27901009000 and 98A32301002000).

5 Apply and release **PARKING BRAKE** control handle several times to stabilize cable tension.

6 Check that the two cable quadrants can still be readily rigged.

7 If quadrants cannot be readily rigged, carry out final adjustment so that rigging pins can be inserted.

8 Discard and replace both turnbuckle safety pins.
Safety the two cable turnbuckles.

(3)Adjustment of control cable run in nose gear well between cable quadrant (5) and parking brake selector (7).

(a)Rig the parking brake selector with rigging pin 98A32301005000.

NOTE : Make certain that selector lever (8) is set to nominal length, L = 102.6 mm (4.036 in.). Adjust as necessary.

(b)Make certain that rigging pin 98A32301002000 can be readily inserted into the cable quadrant (5).

(c)If rigging pins cannot be readily inserted :

1 Adjust length of adjustable rod (6) so that pin 98A32301002000 can be inserted in the cable quadrant (5) rigging hole.

2 Tighten and safety adjustable rod (6) end fittings.

3 Remove both rigging pins.

(d)Place **PARKING BRAKE** control handle in on (applied) position.

(e)Check that the two pins on rigging plate 98A32301020000 can be readily inserted in rigging holes of selector (7) and lever (8).

(f)If pins cannot be readily inserted :

1 Disconnect adjustable rod (6) from selector lever (8)

2 Manually move the selector lever (8) until pin in rigging plate 98A32301020000 can be readily inserted.

3 Adjust length of adjustable rod (6) and selector lever (8) until link rod (6) can be installed on selector lever (8).

4 Tighten and safety the lever (8) and adjustable rod (6) end fittings.

5 Remove rigging plate 98A32301020000.

6 Place **PARKING BRAKE** control handle in normal position.

7 Make certain that rigging pins can still be inserted in lever (8) and selector (7) rigging holes.

8 If pins cannot be readily inserted carry out final adjustment by repeating foregoing operations.

E. Test

(1)Carry out a parking braking operational test. (Ref. Paragraph 2).

F. Close-Up

(1)Make certain that working area is clean and clear of tools and miscellaneous items of equipment.
(2)Pressurize Yellow hydraulic reservoir (Ref. 29-14-00, P. Block 301).
WARNING : MAKE CERTAIN THAT THE DOOR TRAVEL RANGES ARE CLEAR.
(3)Close landing gear doors (Ref. 32-12-11, P. Block 301 or 32-22-11, P. Block 301).
(4)Check fluid level in hydraulic reservoirs. Replenish if necessary (Ref. 12-12-29, P. Block 1).
(5)Remove warning notices.
(6)Close access doors, remove access platform and safety barriers.
(7)Remove all ground handling and maintenance equipment standard and special tools, together with ground power and replenishing equipment, all access equipment and miscellaneous items.

2. Operational Test

WARNING : CHECK THAT THE LANDING GEAR GROUND SAFETIES INCLUDING WHEEL CHOCKS ARE IN POSITION.
BEFORE APPLYING OR RELIEVING HYDRAULIC SYSTEM PRESSURE, MAKE CERTAIN THAT THE TRAVEL RANGES OF THE CONTROL SURFACES ARE CLEAR.
BEFORE PRESSURIZING HYDRAULIC SYSTEMS, CHECK THAT ALL CONTROLS ARE SET TO CORRESPOND WITH THE ACTUAL POSITION OF THE SERVICES THEY OPERATE.
BEFORE POWER IS SUPPLIED TO THE AIRCRAFT MAKE CERTAIN THAT ELECTRICAL CIRCUITS UPON WHICH WORK IS IN PROGRESS ARE ISOLATED.
BEFORE PRESSURIZING HYDRAULIC SYSTEMS, MAKE CERTAIN THAT HYDRAULIC SYSTEM UNDER MAINTENANCE HAS BEEN ISOLATED.

A. Reason for the Job
(1)Anti skid inhibition operational test.
(2)Parking/Ultimate Emergency braking operational test.

B. Equipment and Materials

ITEM	DESIGNATION
(1)	Wheel Chocks
(2)	Warning Notices
Referenced Procedure - 24-41-00, P. Block 301	AC External Power Control

C. Procedure
(1)Job Set-up
(a)Make certain that wheel chocks are in position.
(b)Make certain that circuit breakers associated with braking system (circuit GG) are closed.
(c)On panel 4VU
- make certain that landing gear control lever is in DOWN position and prohibit its operation by displaying a warning notice.
(d)On panel 9VU
- make certain that the PARKING BRAKE control handle is in Normal (released) position.
(e)Check that the Captain's and First Officer's pedals are released.
(f)Energize the aircraft electrical network (Ref. 24-41-00, P. Block 301).
(g)Make certain that electronics racks ventilation is correct.
(h)On panel 401VU
- make certain that BRK/A/SKID switch is in NORM/ON position.

D. Tests
(1)Anti skid inhibition operational test

ACTION	RESULT
R 1. On maintenance panel 472VU R - place ANN LT switch in READ R position R	

ACTION	RESULT
2. On panel 11VU, on ECAM control panel - press WHEEL pushbutton switch	On panel 4VU, on right ECAM display unit - check that WHEEL page is displayed
R 3. On ANTI SKID section of maintenance panel 471VU - press PUSH TO TEST/OK pushbutton switch	On right ECAM display unit - 8 brake release symbols appear
- 3 to 4 seconds later place PARKING BRAKE control handle in on (applied) position	On right ECAM display unit - 8 brake release symbols disappear as soon as PARKING BRAKE control handle is in on position.

R (2)Parking/Ultimate Emergency braking operational test.
(a)Pressurize brake Yellow power accumulator system by pressing PARKING BRAKE/ACCU PRESS pushbutton switch 8GX on panel 9VU (To start up electric pump 25GX) until pressure (ACCU PRESS) displayed on brake Yellow pressure triple indicator 71GG located on panel 4VU, is 3000 psi (206 bars).
(b)Release pushbutton switch 8GX.
(c)On panel 9VU
- place PARKING BRAKE control handle in on (applied) position.
(d)On panel 4VU
- on brake Yellow pressure triple indicator 71GG, check that pressure (BRAKES) delivered to brakes is 2100 ± 150 psi (145 ± 10 bars).
(e)On each brake unit, make certain that 7 out of the 14 pistons (Yellow system) are in operating position (extended).
(f)On interphone box 3WC located in zone 711, make certain that PARKING BRAKE indicator light comes on.
(g)Slowly depressurize Yellow hydraulic system by manually operating pressure relief valve 3063 located on pressure manifold 3060.
(h)Make certain that accumulator pressure (ACCU PRESS) does not drop.
(j)On panel 9VU
- place PARKING BRAKE control handle in Normal (released) position.
(k)On each brake unit make certain that all pistons are released (retracted).
(l)On panel 4VU
- on brake Yellow pressure triple indicator 71GG, check that pressure (BRAKES) delivered to the brakes drops to zero.
(m)On interphone box 3WC located in zone 711, make certain that PARKING BRAKE indicator light goes off.

E. Close-Up
(1)De-energize the aircraft electrical network (Ref. 24-41-00, P. Block 301).
(2)Remove warning notices and make certain that working area is clean and clear of tools and miscellaneous items of equipment.

3. System Test

WARNING : CHECK THAT THE LANDING GEAR GROUND SAFETIES INCLUDING WHEEL CHOCKS ARE IN POSITION.
BEFORE APPLYING OR RELIEVING HYDRAULIC SYSTEM PRESSURE, MAKE CERTAIN THAT THE TRAVEL RANGES OF THE CONTROL SURFACES ARE CLEAR.
BEFORE PRESSURIZING HYDRAULIC SYSTEMS, CHECK THAT ALL CONTROLS ARE SET TO CORRESPOND WITH THE ACTUAL POSITION OF THE SERVICES THEY OPERATE.
BEFORE POWER IS SUPPLIED TO THE AIRCRAFT MAKE CERTAIN THAT ELECTRICAL CIRCUITS UPON WHICH WORK IS IN PROGRESS ARE ISOLATED.
BEFORE PRESSURIZING HYDRAULIC SYSTEMS, MAKE CERTAIN THAT HYDRAULIC SYSTEM UNDER MAINTENANCE HAS BEEN ISOLATED.

A. Equipment and Materials

ITEM	DESIGNATION
(1)97A32402018000	Pressure Gage - Brake Block Hydraulic Pressure
(2)	Wheel Chocks
(3)	Warning Notices
Referenced Procedure - 24-41-00, P. Block 301	AC External Power Control

B. Procedure

(1)Job set-up

(a)On panel 4VU

Make certain that landing gear control lever is in **DOWN** position and prohibit its operation by displaying a warning notice.

(b)Between First Officer's and 3rd Occupant's seats

- make certain that landing gear Free Fall extension control handle is in Normal position.

(c)On panel 9VU

- make certain that **PARKING BRAKE** control handle is in Normal (released) position.

(d)Check that Captain's and First Officer's pedals are released.

(e)Energize the aircraft electrical network (Ref. 24-41-00, P. Block 301).

(f)Make certain that electronics racks ventilation is correct.

C. Test

(1)Check that accumulator nitrogen pressure is 100 bars (1450 psi) for an ambient temperature of 20°C (Ref. 12-14-32, P. Block 1).

(2)Pressurize brake Yellow power accumulator system by pressing **PARKING BRAKE/ACCU PRESS** pushbutton switch 8GX located on panel 9VU (To start Yellow electric pump 25GX) until pressure (**ACCU PRESS**) displayed on brake Yellow pressure triple indicator 71GG, located on panel 4VU, is 3000 psi (206 bars).

(3)Release pushbutton switch 8GX.

(4)On panel 9VU

- place **PARKING BRAKE** control handle in on (applied) position.

(5)On panel 4VU

- on brake Yellow pressure triple indicator 71GG, check that pressure (**BRAKES**) delivered to the eight brakes is 2100 ± 150 psi (145 ± 10

bars).

(6)On interphone box 3WC located in zone 711, make certain that PARKING BRAKE indicator light comes on.

(7)On center pedestal 9VU, place throttle control lever 1 or 2 in ≥ 22° position :

(a)On captain and F/O main instrument panels 3VU and 5VU, make certain that MASTER WARNING lights flash.

(b)On left ECAM display unit, the following red message is displayed :
CONFIG
PARKING BRAKE ON.

(8)On center pedestal 9VU, place throttle control lever in idle position.

(a)On ECAM control panel, press CLR pushbutton switch until MEMO page is displayed.

(b)MASTER WARNING lights go off.

(c)LH ECAM DISPLAY UNIT :
Check that PARKING BRAKE ON green message is displayed.

(d)On ECAM CONTROL PANEL :
Press RCL pushbuton.
Page with CLR pushbutton until MEMO page is displayed and check that the red message PARKING BRAKE ON goes off.

(9)If necessary, restore brake accumulator pressure to 3000 psi (206 bars) by means of Yellow electric pump 25GX to check system for leakage.

(10)Prohibit pressurization of brake Yellow power accumulators by displaying a warning notice on panel 9VU on PARKING BRAKE/ACCU PRESS pushbutton switch. Make certain that Yellow hydraulic system is depressurized.

(11)With PARKING BRAKE control handle in on (applied) position, check on the L and R accumulator pressure gage in the MLG wheel well that accumulator pressure is not lower than that indicated in the table below :

PARKING BRAKE APPLIED (HOURS)	0	0.5	1	1.5	2	3	4	5	6
ACCU PRESS (PSI)	3000	2770	2630	2530	2450	2330	2240	2160	2100
(BARS)	206	191	181	174	169	161	154	149	145

(12)On panel 9VU
- place PARKING BRAKE control handle in Normal (released) position.
- check that on MEMO page, PARKING BRAKE ON message goes off.

(13)On panel 4VU, check on Yellow brake pressure triple indicator 71GG that pressure (BRAKES) delivered to the eight brakes drops to zero.

(14)On interphone box 3WC located in zone 711, make certain that PARKING BRAKE indicator light goes off.

D. Close-Up

(1)Check for hydraulic fluid leakage at servovalves.

(2)De-energize the aircraft electrical network (Ref. 24-41-00, P. Block 301).

(3)Remove warning notices and make certain that working area is clean and

clear of tools and miscellaneous items of equipment.

R 1. Detailed Visual Inspection of Control Cables (Ref. Fig. 601)

A. General
The Parking/Ultimate Emergency brake control system includes 7 x 19 (7 strands of 19 wires) galvanized carbon steel cables.

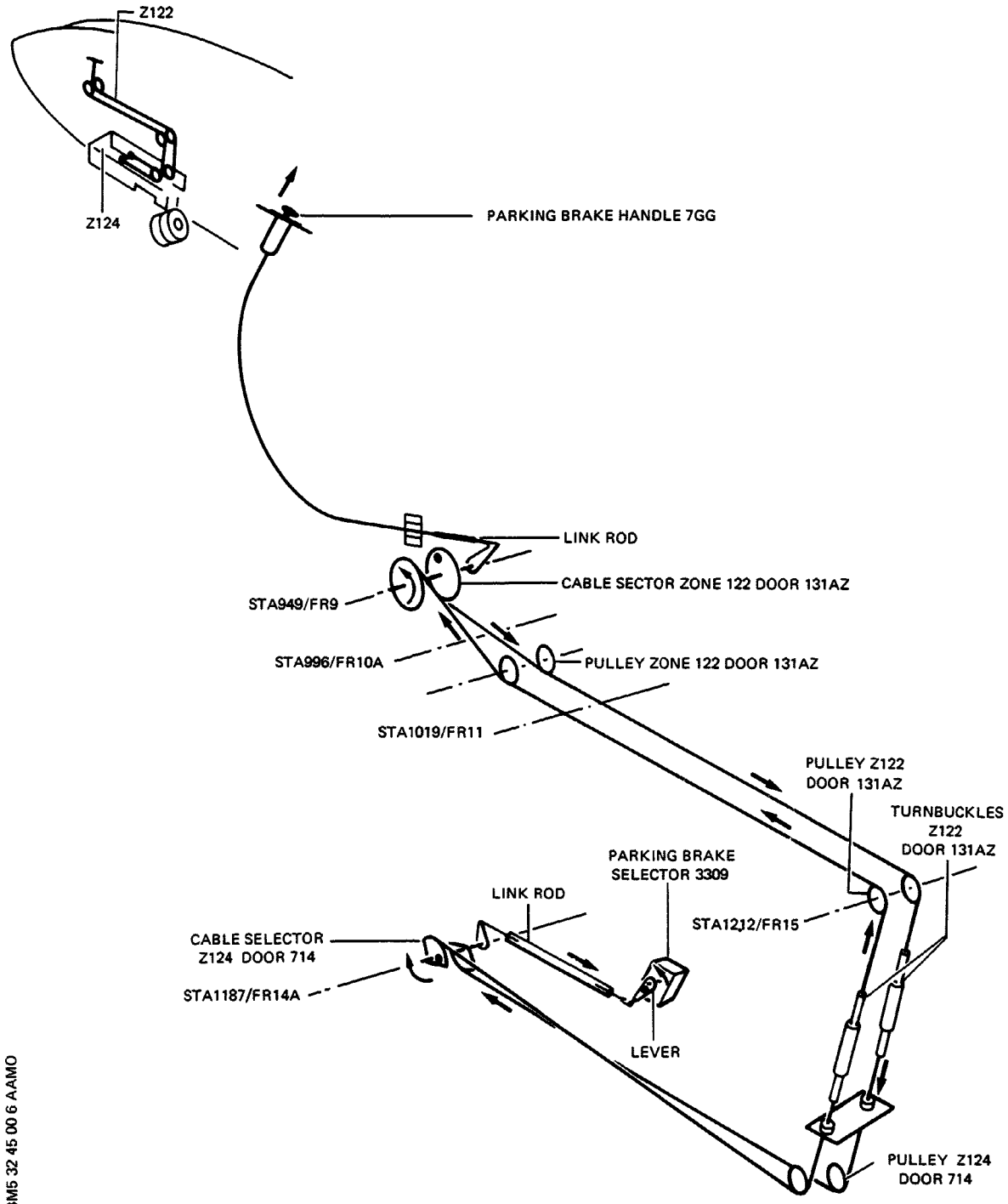
DIAMETER	TYPE	MATERIAL
1/8" (3.2 mm)	7 x 19	Carbon Steel

R B. Reason for the job
R To check cables for wear and corrosion in hidden parts of control linkage.

R C. Equipment and Materials

ITEM	DESIGNATION
R (1)	Access Platforms (2.60 m -2 m) (8 ft. 7 in. - 6 ft. 7 in.)
R (2)	Safety Barriers
R (3)	Warning Notice
R (4)Material No. 05-005	Special Materials (Ref. 20-31-00)
R (5)Material No. 11-003	Cleaning Agents (Ref. 20-31-00)
R Referenced Procedures	
R - 12-12-29, P. Block 1	Hydraulic Fluid
R - 29-10-00, P. Block 301	Main Hydraulic Power
R - 29-14-00, P. Block 301	Hydraulic Reservoir Pressurizing System
R - 32-12-11, P. Block 301	Main Gear Main Doors
R - 32-22-11, P. Block 301	Nose Gear Main Door(Ground Door(s) Opening)

R D. Procedure
R (1)Job set-up
R (a)Make certain that wheel chocks are in position.
R (b)On panel 4VU, make certain that landing gear control lever is in DOWN position and prohibit its operation by displaying a warning notice.
R (c)Between First Officer's and 3rd Occupant's seats, make certain that landing gear Free Fall extension control handle is in Normal position.
R (d)On panel 9VU, make certain that PARKING BRAKE control handle is in Normal released position.
R (e)Position access platform.
R (f)Position safety barriers prohibiting access to door travel ranges.
R
R WARNING : MAKE CERTAIN THAT THE DOOR TRAVEL RANGES ARE CLEAR.
R (g)Open right main gear door and nose gear doors (Ref. 32-12-11, P. Block 301 and 32-22-11, P. Block 301).
R
R WARNING : WHEN DOORS ARE OPEN MAKE CERTAIN THAT SAFETY COLLARS ARE POSITIONED ON DOOR ACTUATING CYLINDERS.

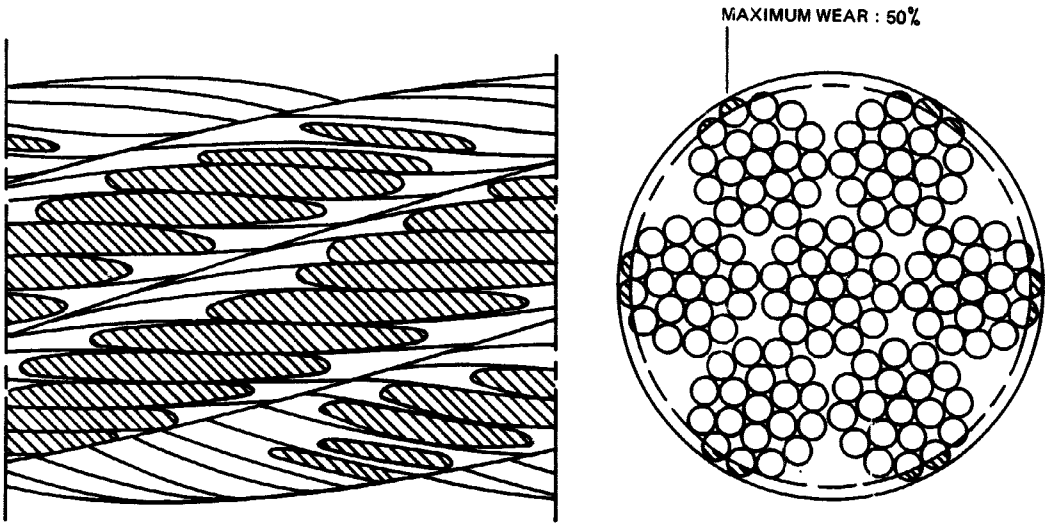


Parking/Ultimate Emergency Brake - Mechanical Control
Figure 601

R (h)Open access door 131AZ.
R (j)Depressurize Yellow hydraulic system (Ref. 29-10-00, P. Block 301) and prohibit its pressurization by displaying a warning notice :
R - on Yellow hydraulic system ground connectors
R - on panel 427VU to prohibit energization of power transfer unit (right PTU pushbutton switch).
R (k)Depressurize Yellow hydraulic reservoir (Ref. 29-14-00, P. Block 301) and prohibit its pressurization by displaying a warning notice :
R - on panel 429VU to prohibit APU starting
R - on reservoir pressurization connector.
R (l)Depressurize brake power accumulators 3125 and 3126 through manual control on pressure relief valve 3067 located on pressure manifold 3060 and prohibit pressurization by displaying a warning notice :
R - on panel 9VU, on PARKING BRAKE/ACCU PRESS pushbutton switch.
R
R (2)Detailed inspection of control cables
R NOTE 1 : To check cable sections in contact with pulleys, fairleads, pressure seals for wear and corrosion, move the control cables by actuation of the PARKING BRAKE control handle.
R (a)Cable wear
(Ref. Fig. 602)
- Check all cables especially portions of cables in contact with pulleys, fairleads or pressure seals (see NOTE 1).
- If there is no broken wire in the wear zone, on a cable length of one inch (25.4 mm) the maximum wear limits are :
- No more than 6 wires worn by more than half their diameter.
R NOTE 2 : One worn wire less on a length of one inch (25.4 mm) per
R broken wire over that length is permissible.
- If there is more than one wear zone, cable is deemed acceptable if all wear zones are within tolerances and if two wear zones are not adjacent on the periphery.
- Any wire worn by more than 60% on its diameter is considered as being broken.

(2)Wire Breaking
- With a cloth lightly held in hand, check for broken wires by moving hand both ways over total length of cable.
- Maximum serviceable limits are as follows :
Six broken wires per inch (25.4 mm) with a maximum of three wires per strand.
- There must be no broken wires over two successive lengths of 1 inch (25.4 mm).
- For cable sections at pulleys, fairleads, pressure seals, a maximum of 3 broken wires is permissible.

(3)Diameter Increase
Any cable with an increase in diameter above the following tolerances must be replaced :



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Cable Wear
Figure 602

NOMINAL DIAMETER	PERMISSIBLE DIAMETER
1/8 " (3.2 mm)	3.5 mm (0.138 in.)

(4)Corrosion
Check for corrosion especially on cable sections in contact with pulleys, fairleads and pressure seals (see NOTE 1).
- If any surface corrosion is found, carry out a more detailed inspection requiring cable slackening for inspection of inner strands.
- Discard the cable if inner strand corrosion is found.

In case of superficial corrosion :
- Clean the cable using a brush or a lint-free cloth soaked with material No.11-003.
- Allow to dry
- Apply anti-corrosion product No.05-005 on cable.

R E. Close-up
R (1)Make certain that working area is clean and clear of tools and miscellaneous items of equipment.
R (2)Pressurize Yellow hydraulic reservoir (Ref. 29-14-00, P. Block 301).
R
R WARNING : MAKE CERTAIN THAT THE DOOR TRAVEL RANGES ARE CLEAR.
R (3)Close right main gear door and nose gear doors (Ref. 32-12-11, P. Block 301 and 32-22-11, P. Block 301).
R (4)Close access door 131AZ.
R (5)Check fluid level in hydraulic reservoirs. Replenish if necessary (Ref. 12-12-29, P. Block 1).
R (6)Remove warning notices.
R (7)Remove access platform and safety barriers.

2. Pulleys

A. General
The parking brake control system incorporates fiber/resin pulleys mounted on bearings and protected by stainless steel deflectors.

B. Visual Inspection
Check the condition of pulleys :
- Cracked edges
- Evidence of abnormal wear in bottom of groove
- Cracked core
- Blisters
- Excessive play in bearing cage.

C. Operational Check
(1)Check that there are no tight spots.
(2)Check that cable has not skidded on pulley.
(3)Eccentricity check.

PULLEY DIAMETER AT GROOVE BOTTOM	MAXIMUM GAP BETWEEN GROOVE EDGES	MAXIMUM GAP AT GROOVE BOTTOM
≤ 30 mm (1.18 in.)	0.30 mm (0.011 in.)	0.15 mm (0.0059 in.)
from 30 mm to < 80 mm from 1.18 in. to 3.15 in.	0.40 mm (0.015 in.)	0.20 mm (0.0078 in.)
≥ 80 mm (3.15 in.)	0.50 mm (0.019 in.)	0.20 mm (0.0078 in.)

(4)Run-Out
Check that lateral run-out of pulley per revolution does not exceed :
- 0.25 mm (0.0098 in.) for pulleys which are less than 80 mm (3.15 in.) diameter.
- 0.30 mm (0.011 in.) for pulleys which are more than or equal to 80 mm (3.15 in.) diameter.

(5)Side Play
Side play must not exceed 0.15 mm (0.0059 in.) irrespective of the diameter of pulley.

PARKING BRAKE CONTROL HANDLE (7GG) - REMOVAL/INSTALLATION

WARNING : CHECK THAT THE LANDING GEAR GROUND SAFETIES INCLUDING WHEEL CHOCKS ARE IN POSITION.

1. Equipment and Materials

ITEM	DESIGNATION
A.	Wheel Chocks
B. 98A27901009000	Pin-Rigging, Parking Brake Control
C.	Lockwire, Corrosion resistant Steel, DIA. 0.8 mm (0.032 in.).
D.	Access Platform 4.70 m 15 ft. 8 in.)
Referenced Procedures	
R - 20-23-13, P. Block 1	Routing of Teleflex Control Tubes - Bending
- 24-41-00, P. Block 301	AC External Power Control
- 29-10-00, P. Block 301	Main Hydraulic Power
- 29-14-00, P. Block 301	Hydraulic Reservoir Pressurizing System
- 32-42-00, P. Block 501	Normal Braking
- 32-45-00, P. Block 501	Parking Braking Test

2. Procedure

A. Job Set-Up
(1)Make certain that wheel chocks are in position.
(2)Position access platform at forward cargo compartment door.
(3)Make certain that **PARKING BRAKE** control handle is in **Normal** (released) position.
(4)Open access door **131AZ**.
(5)Open, safety and tag the following circuit breakers :

PANEL	SERVICE	IDENT.	LOCATION
133VU	HYDRAULIC/BRAKES SYSTEM/CTL UNIT/ CTL &/WARN	5GG	333/T56
133VU	HYDRAULIC/PTU CTL/G/Y	6GL	332/U60
133VU	HYDRAULIC/ACCU PRESS/CTL &/CARGO DOOR/PUMP	7GX	333/T51

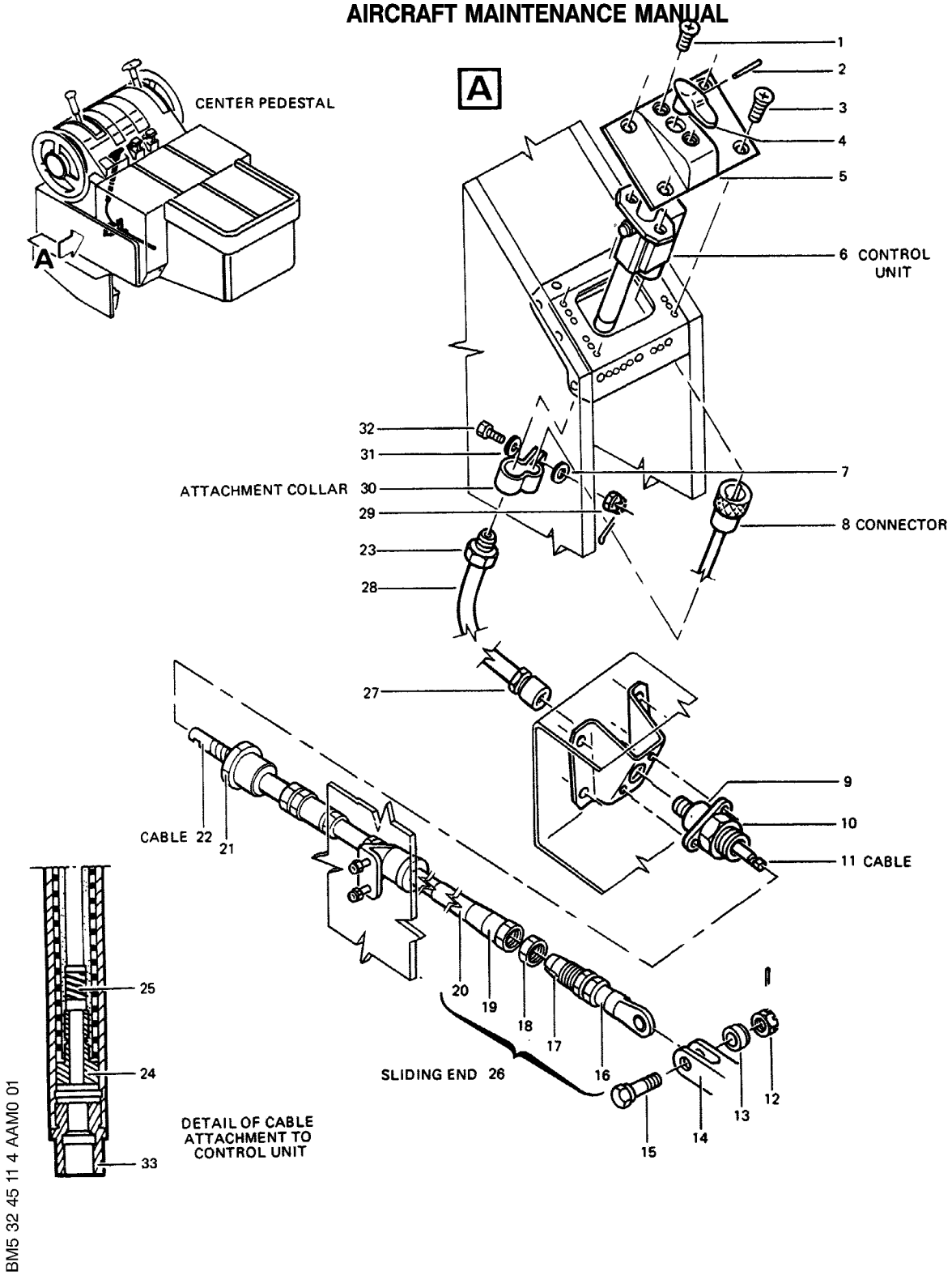
(6)Depressurize Yellow hydraulic reservoir (Ref. 29-14-00, P. Block 301) and prohibit its pressurization by displaying a warning notice :
- on panel **429VU** to prohibit **APU** starting
- on hydraulic reservoir pressurization connector

(7)Depressurize Yellow hydraulic system (Ref. 29-10-00, P. Block 301) and prohibit its pressurization by displaying a warning notice :
- on Yellow system ground connectors
- on panel **427VU** to prohibit energization of Yellow **PWR TRANSF** unit (**RH PTU** pushbutton switch).

(8)Depressurize braking Yellow power accumulators 3125 and 3126 by operating pressure relief valve 3067 located on pressure manifold 3060.

B. Removal
(Ref. Fig. 401)
(1)Disconnect sliding end fitting (26) from crank (14) fork fitting. Remove cotter pin, nut (12), remove and retain washer (13) and remove bolt (15).
(2)Disconnect the two cables (11) and (22).
(a)Place **PARKING BRAKE** control handle (4) in on (applied) position.
(b)Loosen locknut (10) and unscrew end fitting (21). Disengage cable end fittings.
(3)Free cable (22) from sliding end fitting (26) :
(a)Loosen locknut (18) and unscrew clamping cone (19).
(b)Separate cable from threaded end fitting (17).
(c)Withdraw clamping cone (19) and exterior sliding sleeve (20) from cable.
(d)Withdraw cable (22) from its protective sleeve, pulling it by the cable end fitting.
(4)Uncouple protective sleeve (28) from cable connection support (9) by unscrewing end fitting (27).
(5)Remove screws (3) and remove flanged retainer from control pedestal.
(6)Remove the brake control unit (6) and protective sleeve (28) from control pedestal.
(7)Disconnect electrical connector (8).
(8)Withdraw attachment collar (30) from the electrical connector (8) cable. Remove cotter pin, nut (29), washers (7) and (31) and screw (32).

C. Preparation of replacement component
(1)From the removed brake control unit :
R (a)Remove connector (33) from brake control unit (6), unscrew end fitting
R (23) and withdraw protective sleeve (28).
(b)Loosen locking screw (24) on cable (11) and withdraw cable.
NOTE : - Unless cable is to be replaced, do not remove the cable spring (25) or locking screw (24).
- If cable is to be replaced, fit spring (25) and locking screw (24) on replacement cable.
Cable (11) must be screwed into spring (25) so that junction of cables (22) and (11) is possible when parking brake control handle (4) is applied (parking position) the notch on end of cable (11) must be visible.
- If protective sleeve (28) is to be replaced, slightly bend protective sleeve (Ref. 20-23-13, P. Block 1).
(c)Remove taper pin (2) and withdraw handle (4).
(d)Remove screws (1) and remove flanged retainer (5) from the brake control unit (6).
(2)On replacement brake control unit :
(a)Depreserve brake control unit and check for correct condition.
(b)Install flanged retainer (5) on brake control unit (6) with screws (1).
(c)Position handle (4) on brake control unit and install taper pin (2).
R (d)Insert cable (11) in its housing, secure with locking screw (24) and
R install connector (33) to brake control unit (6).
(e)Connect protective sleeve (28) by screwing on end fitting (23) and



Parking Brake Control Handle 7GG Removal/Installation
Figure 401

R

wirelock.

D. Installation
(1)Attach electrical connector (8) cable to brake control unit (6) with attachment collar (30).
(2)Connect electrical connector (8).
(3)Install brake control unit (6) and secure retainer flange (5) with screws (3).
(4)Insert cable (11) into connection support (9).
(5)Connect protective sleeve (28) to connection support (9) by means of end fitting (27), and wirelock fitting.
(6)Insert cable (22) into its protective sleeve through end fitting (21).
(7)Place **PARKING BRAKE** control handle in applied position and connect cables (11) and (22) (with notch on end of cable).
(8)Screw on end fitting (21) and tighten locknut (10). Wirelock nut.
(9)Install exterior sleeve (20) on the cable (22) together with clamping cone (19).
(10)Screw threaded end fitting (17) on cable (22).
(11)Install exterior sliding sleeve (20) and tighten clamping cone (19).
- Tighten locknut (18) and wirelock.
(12)Place **PARKING BRAKE** control handle (4) in Normal (released) position.
(13)Rig **PARKING BRAKE** control crank (14) with pin 98A27901009000.
(14)Connect sliding end (26) to crank (14).
- If necessary adjust length of control by means of end-fitting (16).
- Install bolt (15), washer (13) and nut (12). Safety nut (12) with cotter pin.

NOTE : Install bolt (15) with its head away from aircraft centerline (outboard).

(15)Remove pin 98A27901009000.

E. Test
Carry out a parking/ultimate emergency braking operations test (Ref. 32-45-00, P. Block 501).
Carry out a normal braking operational test (Ref. 32-42-00, P. Block 501).

F. Close-Up
(1)Remove safety clips and tags and close circuit breakers 5GG, 6GL and 7GX.
(2)Pressurize Yellow hydraulic reservoir (Ref. 29-14-00, P. Block 301).
(3)Make certain that working area is clean and clear of tools and miscellaneous items of equipment.
(4)Close access door 131AZ.
(5)Remove access platform from forward cargo compartment access door.
(6)Remove warning notices.

PARKING BRAKE SELECTOR (3309) - REMOVAL/INSTALLATION

R **WARNING** : CHECK THAT THE LANDING GEAR GROUND SAFETIES INCLUDING WHEEL CHOCKS ARE IN POSITION.
BEFORE APPLYING OR RELIEVING HYDRAULIC SYSTEM PRESSURE, MAKE CERTAIN THAT THE TRAVEL RANGES OF THE CONTROL SURFACES ARE CLEAR.
BEFORE PRESSURIZING HYDRAULIC SYSTEMS, CHECK THAT ALL CONTROLS ARE SET TO CORRESPOND WITH THE ACTUAL POSITION OF THE SERVICES THEY OPERATE.
BEFORE POWER IS SUPPLIED TO THE AIRCRAFT MAKE CERTAIN THAT ELECTRICAL CIRCUITS UPON WHICH WORK IS IN PROGRESS ARE ISOLATED.
BEFORE PRESSURIZING HYDRAULIC SYSTEMS MAKE CERTAIN THAT HYDRAULIC SYSTEM UNDER MAINTENANCE HAS BEEN ISOLATED.

1. Equipment and Materials

ITEM	DESIGNATION
A. 98A32301002000	Pin - Rigging, Parking Brake Control
B. 98A32301005000	Pin - Rigging, Parking Brake Selector
C. 98A32301020000	Plate - Rigging, Parking Brake Control
D.	Wheel Chocks
E.	Circuit Breaker Safety Clips
F.	Access Platform (2 m - 2,60 m) (6 ft. 7 in. 8 ft. 7 in.)
G.	Warning Notices
H.	Safety Barriers
J.	Blanking Plugs
K.	Hydraulic Fluid Container
L. Material No. 11-002	Cleaning Agents (Ref. 20-31-00)
Referenced Procedures	
- 12-12-29, P. Block 1	Hydraulics
- 29-10-00, P. Block 301	Main Hydraulic Power - Pressurization/ Depressurization
- 29-14-00, P. Block 301	Hydraulic Reservoir Pressurizing System
- 32-12-11, P. Block 301	Main Gear Main Door - (Ground Door(s) Opening)
- 32-22-11, P. Block 301	Nose Gear Main Door - (Ground Door(s) Opening)
- 32-45-00, P. Block 501	Parking Braking

2. Procedure

A. Job Set-Up
(1)Make certain that wheel chocks are in position.
(2)On panel 4VU
- Make certain that landing gear control lever is in **DOWN** position and prohibit its operation by displaying a warning notice.

(3)Position forward cargo compartment door access platform.
(4)Open access door 132AZ
(5)Between First Officer's and Third Occupant's seats :
- Make certain that landing gear Free Fall extension control handle is in Normal position.

(6)On mechanical center pedestal 9VU
- Place PARKING BRAKE control handle in Normal (released) position.

(7)Position safety barriers and left landing gear access platform.

(8)Open, safety and tag the following circuit breakers :

PANEL	SERVICE	IDENT.	LOCATION
133VU	HYDRAULIC/ACCU PRESS/CTL &/CARGO DOOR/ PUMP	7GX	333/T51
133VU	HYDRAULIC/PTU CTL/G/Y	6GL	332/U60

WARNING : MAKE CERTAIN THAT THE DOOR TRAVEL RANGES ARE CLEAR.

(9)Open main gear left door, and nose gear doors (Ref. 32-12-11, P. Block 301 and Ref. 32-22-11, P. Block 301).
WARNING : WHEN DOORS ARE OPEN MAKE CERTAIN THAT SAFETY COLLARS ARE POSITIONED ON DOOR ACTUATING CYLINDERS.

(10)Depressurize Yellow hydraulic reservoir (Ref. 29-14-00, P. Block 301) and prohibit its pressurization by displaying a warning notice :
- on panel 429VU to prohibit APU starting
- on reservoir pressurization connector

(11)Depressurize Yellow hydraulic system (Ref. 29-10-00, P. Block 301) and prohibit its pressurization by displaying a warning notice :
- on Yellow system ground connectors
- on panel 427VU to prohibit energization of Yellow PWR TRANSF unit (RH PTU pushbutton switch)

(12)Depressurize braking system by operating pressure relief valve 3067 located on pressure manifold 3060

(13)Connect electrical ground power unit

(14)Position hydraulic fluid container

WARNING : MAKE CERTAIN THAT YELLOW HYDRAULIC SYSTEM IS NOT SUPPLIED.

B. Removal

(Ref. Fig. 401)

(Ref. Fig. 402)

(1)Disconnect rod (9) from selector (12) control lever (6). Remove cotter pin, nut (7), retain washer (8) and remove link bolt (11).

(2)Mark and disconnect hydraulic lines (3), (4) and blank open line ends.

(3)Remove nuts (1) attaching selector to support bracket (2).

R (4)Support selector and remove washers (16) and bolts (5).

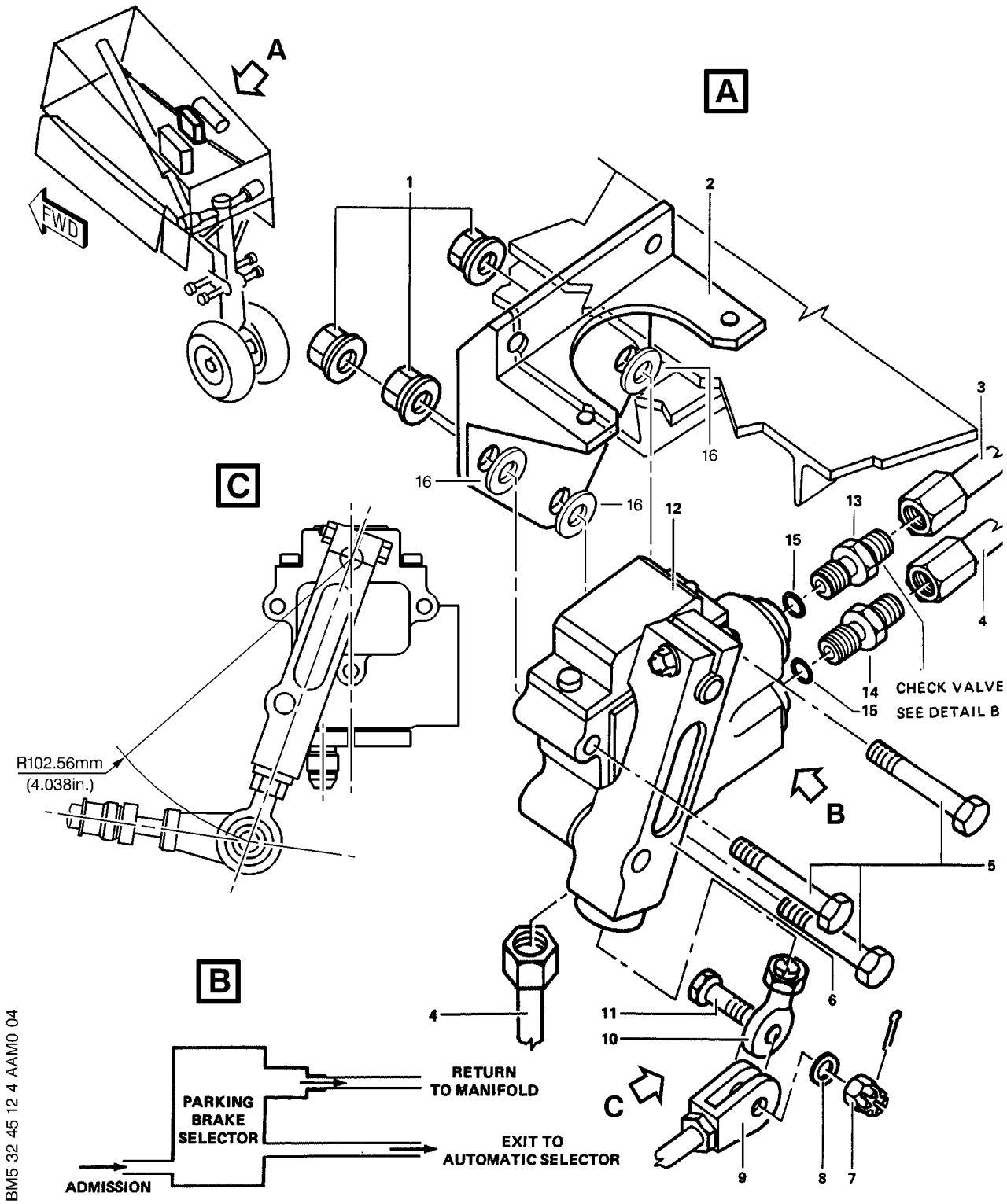
(5)Remove selector.

C. Preparation of Replacement Component

(1)Depreserve replacement selector and check its condition

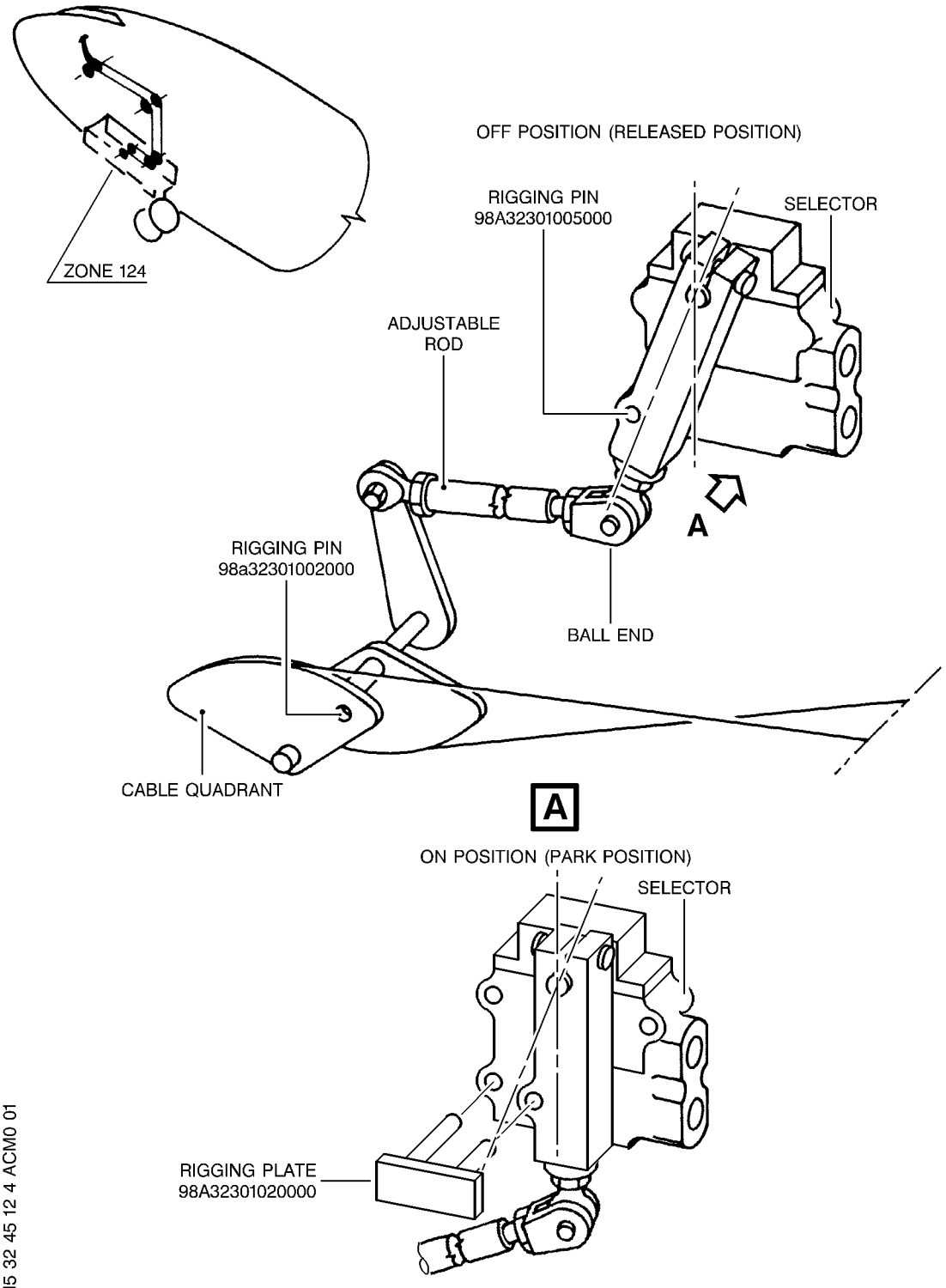
(2)If replacement component is supplied without non return valve, recover the non return valve installed in the removed component, clean and check them for correct condition and install in replacement component using new seals.

(3)Remove ball end (10) from lever (6) on removed selector and install it at a theoritical length of 102.6 mm on the replacement selector. Tighten and wirelock.



Parking Brake Selector
Figure 401

R



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Parking Brake Selector - Adjustment of Control Handle
Figure 402

R

D. Installation

NOTE : The replacement Parking Brake selector is filled with aircraft system hydraulic fluid (Ref. 20-31-00).

(1)Position selector (12).

R (2)Install bolts (5), washers (16) and nuts (1).

(3)Remove blanking plugs, install packings (15) and tighten check valve (13) and union (14) into their respective locations to connect hydraulic lines (3), (4) on selector (12).

(4)Rig control lever (6) to selector using pin 98A32301005000.

(5)Connect adjustable rod (9) to control lever ball end (10). Install link bolt (11) washer(s) and nut (7). Safety nut (7) with a cotter pin.

NOTE : Install link bolt (11) with head outboard.

(6)Adjust length of control lever (6), as necessary, until rigging pin 98A32301002000 can be readily inserted in cable quadrant rigging hole.

(7)Remove rigging pins.

(8)Place **PARKING BRAKE** control handle in Parking (applied) position.

(9)Check that the two centering pins on rigging plate 98A32301020000, can be readily inserted in the selector and control lever rigging holes.

(10)If necessary adjust as follows :

(a)Disconnect adjustable rod (9) from the control lever ball end (10).

(b)Position selector control lever ball end (10) so that centering pins on rigging plate 98A32301020000 can be inserted.

(c)Adjust length of adjustable rod (9) and that of selector ball end (10) until rod (9) can be connected to selector ball end (10).

(d)Tighten and safety rod (9) and lever (6) end fittings.

(e)Remove rigging plate 98A32301020000

(11)Position **PARKING BRAKE** handle in Normal (released) position.

(12)Make certain that rigging pin can be readily inserted in lever (6) and selector (12).

(13)If rigging pin cannot be readily inserted repeat above adjustment procedure.

(14)Remove safety clips and tags and close circuit breakers 7GX and 6GL.

E. Test

(1)Carry out a Parking Braking Operational test (Ref. 32-45-00, P. Block 501).

F. Close-Up

(1)Remove hydraulic fluid container.

(2)Make certain that working area is clean and clear of tools and miscellaneous items of equipment.

WARNING : MAKE CERTAIN THAT DOOR TRAVEL RANGES ARE CLEAR.

(3)Pressurize hydraulic reservoirs (Ref. 29-14-00, P. Block 301).

(4)Close landing gear doors (Ref. 32-12-11, P. Block 301 or 32-22-11, P. Block 301).

(5)Replenish hydraulic reservoirs as necessary (Ref. 12-12-29, P. Block 1).

(6)Remove warning notices

(7)Close access doors, remove access platform and safety barriers.

(8)Remove all ground handling and maintenance equipment, standard and

special tools, together with ground power and replenishing equipment, all access equipment and miscellaneous items.

PARKING BRAKE OPERATED VALVE (3293) - REMOVAL/INSTALLATION

R **WARNING : CHECK THAT THE LANDING GEAR GROUND SAFETIES INCLUDING WHEEL CHOCKS ARE IN POSITION**

1. Equipment and Materials

ITEM	DESIGNATION
A.	Blanking Caps
B.	Access Platform 2.60 m (8ft. 7in)
C.	Hydraulic Fluid Container
D.	Wheel Chocks
E.	Circuit Breaker Safety Clips
F.	Warning Notice
G.	Torque Wrench 0 to 30 m.daN (0 to 221 lbf.ft)
H. Material No. 11-002	Cleaning Agents (Ref. 20-31-00)
Referenced Procedures	
- 12-12-29, P. Block 1	Hydraulics
- 29-10-00, P. Block 301	Main Hydraulic Power - Pressurization/Depressurization
- 29-14-00, P. Block 301	Hydraulic Reservoir Pressurizing System
- 32-12-11, P. Block 301	Main Gear Main Door - (Ground Door(s) Opening)
- 32-43-00, P. Block 301	Alternate Braking with Anti-Skid
- 32-45-00, P. Block 501	Parking/Ultimate Emergency Braking

2. Procedure

A. Job Set-up

(1)Make certain that wheel chocks are in position

(2)On mechanical center pedestal 9VU

- make certain that **PARKING BRAKE** control handle is in normal (released) position and prohibit its operation by displaying a warning notice.

(3)Open right main landing gear main door (Ref. 32-12-11, P. Block 301).

(4)Position access platform

(5)Open, safety and tag the following circuit breakers :

PANEL	SERVICE	IDENT.	LOCATION
133VU	HYDRAULIC/BRAKES SYSTEM/CTL UNIT/CTL & WARN	5GG	333/T56
133VU	HYDRAULIC/PTU CTL/G/Y	6GL	332/U60
133VU	HYDRAULIC/ACCU PRESS/CTL AND CARGO DOOR PUMP	7GX	333/T51

(6)Depressurize Yellow hydraulic system (Ref. 29-10-00, P. Block 301) and prohibit its pressurization by displaying a warning notice :

- on yellow hydraulic system ground connectors.
- on panel 427VU, to prohibit energization of power transfer unit (right PTU pushbutton switch)

(7)Depressurize Yellow hydraulic reservoir (Ref. 29-14-00, P. Block 301)

and prohibit its pressurization by displaying a warning notice :
- on reservoir pressurization connector
- on panel 429VU prohibiting APU starting

(8)Depressurize brake system accumulators 3125 and 3126 by means of relief valve 3067 manual control located on pressurization manifold 3060.
(9)Gain access to valve 3293 to be removed (hydraulics compartment, zone 148)
(10)Install hydraulic fluid container

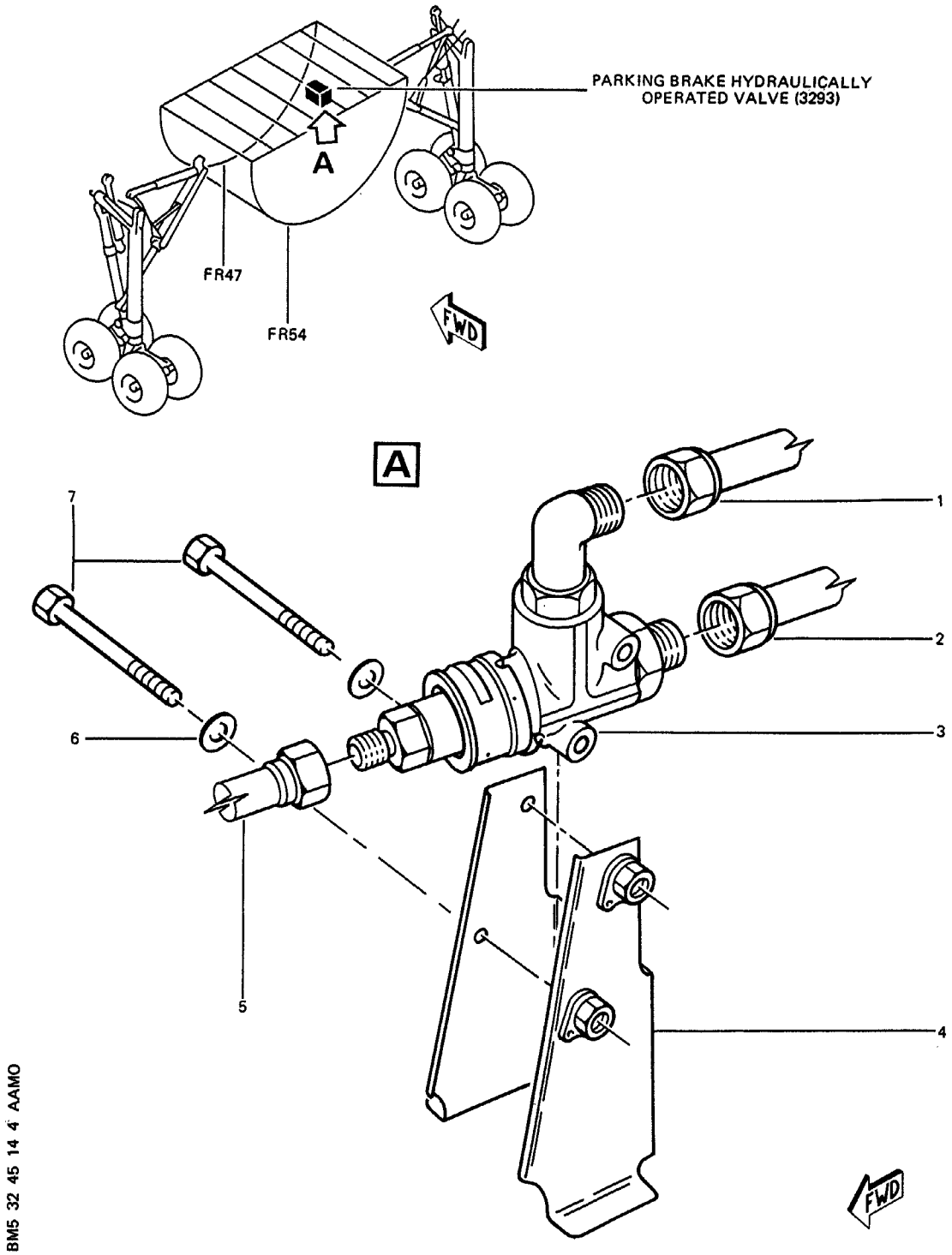
B. Removal
(Ref. Fig. 401)
(1)Mark and disconnect hydraulic lines (1), (2) and (5). Blank open line, end and ports on valve (3)
(2)Support valve (3).
(3)Remove and retain bolts (7) and washers (6)
(4)Remove valve (3).

C. Preparation of Replacement Component
NOTE : Valve 3293 is filled with aircraft system hydraulic fluid (Ref. 20-31-00)
(1)Depreserve replacement component by removing external protective coverings.
(2)Clean all parts with Material No. 11-002 (Ref. 20-31-00) and dry with filtered conpressed air.
(3)If replacement component is supplied without hydraulic connectors, remove connectors from removed component, clean and check them for condition and install in replacement component together with new seal.
WARNING : TAKE ALL NECESSARY PRECAUTIONS TO PREVENT CONTAMINATION OF VALVE THROUGH PORTS.

D. Installation
(1) Position valve (3) on its mount (4)
(2)Attach with bolts (7) and washers (6)
(3)Remove blanking caps/plugs and connect hydraulic lines (1), (2) and (5).
(4)TORQUE hydraulic lines (1) and (2) to between 5.4 and 5.9 m.daN (477.93 and 522.19 lbf.in).
(5)TORQUE hydraulic line (5) to between 1.5 and 1.7 m.daN (132.76 and 150.46 lbf.in).
(6)Perform bleeding of alternate braking system from the flight compartment (Ref. 32-43-00, P. Block 301).

E. Test
(1)Carry out Parking/Ultimate Emergency braking Operationel test (Ref. 32-45-00, P. Block 501).
NOTE : Check valve 3293 for leakage at initial pressurization and upon completion of tests.

F. Close-up
(1)Remove hydraulic fluid container from hydraulics compartment.
(2)Make certain that working area is clean and clear of tools and miscellaneous items of equipment.



Parking Brake Operated Valve
Figure 401

(3)Remove warning notices.
(4)Remove safety clips and tags and close circuit breakers 7GX, 6GL and 5GG.
(5)Check fluid level in hydraulic reservoir and top up if necessary (Ref. 12-12-29, P. Block 1).
(6)Pressurize Yellow hydraulic reservoir (Ref. 29-14-00, P. Block 301).
(7)Close right main landing gear main door (Ref. 32-12-11, P. Block 301).
(8)Remove access platform
(9)Remove all ground handling and maintenance equipment, standard and special tools, together with ground power and replenishing equipment, all access equipment and miscellaneous items.

PARKING BRAKE PRESSURE LIMITER (3292) - REMOVAL/INSTALLATION

WARNING : CHECK THAT THE LANDING GEAR GROUND SAFETIES INCLUDING WHEELS CHOCKS ARE IN POSITION.

1. Equipment and Materials

ITEM	DESIGNATION
A.	Wheel Chocks
B.	Access Platform 2.60 m (8 ft. 7 in.)
C.	Hydraulic Fluid Container
D.	Blanking Caps
E.	Circuit Breaker Safety Clips
F.	Warning Notice
G. Material No. 11-002	Cleaning Agents (Ref. 20-31-00)
Referenced Procedures	
- 12-12-29, P. Block 1	Hydraulics
- 29-10-00, P. Block 301	Main Hydraulic Power - Pressurization/ Depressurization
- 29-14-00, P. Block 301	Hydraulic Reservoir Pressurizing System
- 32-12-11, P. Block 301	Main Gear Main Door - (Ground Door(s) Opening)
- 32-43-00, P. Block 301	Alternate Braking with Anti-Skid
- 32-45-00, P. Block 501	Parking/Ultimate Emergency Braking

2. Procedure

A. Job Set-Up

(1)Make certain that wheel chocks are in position.

(2)On mechanical center pedestal 9VU

- make certain that **PARKING BRAKE** control handle is in Normal (released) position and prohibit its operation by displaying a warning notice.

(3)Open right main landing gear main door (Ref. 32-12-11, P. Block 301).

(4)Open, safety and tag the following circuit breakers :

PANEL	SERVICE	IDENT.	LOCATION
133VU	HYDRAULIC/BRAKES SYSTEM/CTL UNIT/ CTL &/WARN	5GG	333/T56
133VU	HYDRAULIC/PTU CTL/G/Y	6GL	332/U60
133VU	HYDRAULIC/ACCU PRESS/CTL &/CARGO DOOR/PUMP	7GX	333/T51

(5)Position access platform.

(6)Depressurize Yellow hydraulic system (Ref. 29-10-00, P. Block 301) and prohibit its pressurization by displaying a warning notice :

- on Yellow hydraulic system ground connectors
- on panel 427VU to prohibit energization of **PWR TRANSF** unit (R PTU pushbutton switch).

(7)Depressurize Yellow hydraulic reservoir (Ref. 29-14-00, P. Block 301) and prohibit its pressurization by displaying a warning notice :

- on reservoir pressurization connector
- on panel 429VU prohibiting APU starting.

(8)Gain access to parking brake pressure limiter 3292 to be removed (zone 148).
(9)Install hydraulic fluid container.
(10)Depressurize brake system accumulators 3125 and 3126 by means of relief valve 3067 manual control located on pressurization manifold 3060.

B. Removal

R (Ref. Fig. 401)

(1)Mark and disconnect hydraulic lines (1), (2), (7) and (8). Blank open line ends and ports on pressure limiter (3).
(2)Remove pressure limiter.
(a)Support pressure limiter (3) and remove bolts (4) and (5) and washers (6).
(b)Remove pressure limiter (3).

C. Preparation of Replacement Component

(1)Depreserve replacement component by removing external protective coverings.
(2)Clean pressure limiter interface and/or adjacent area with Material No. 11-002 (Ref. 20-31-00) and dry with filtered compressed air.
WARNING : TAKE ALL NECESSARY PRECAUTIONS TO PREVENT CONTAMINATION THROUGH PRESSURE LIMITER PORTS.
(3)If replacement component is supplied without hydraulic connectors, remove connectors from removed component, clean and check them for condition and install in replacement component together with new seals.
NOTE : The pressure limiter 3292 is filled with aircraft system hydraulic fluid (Ref. 20-31-00).

D. Installation

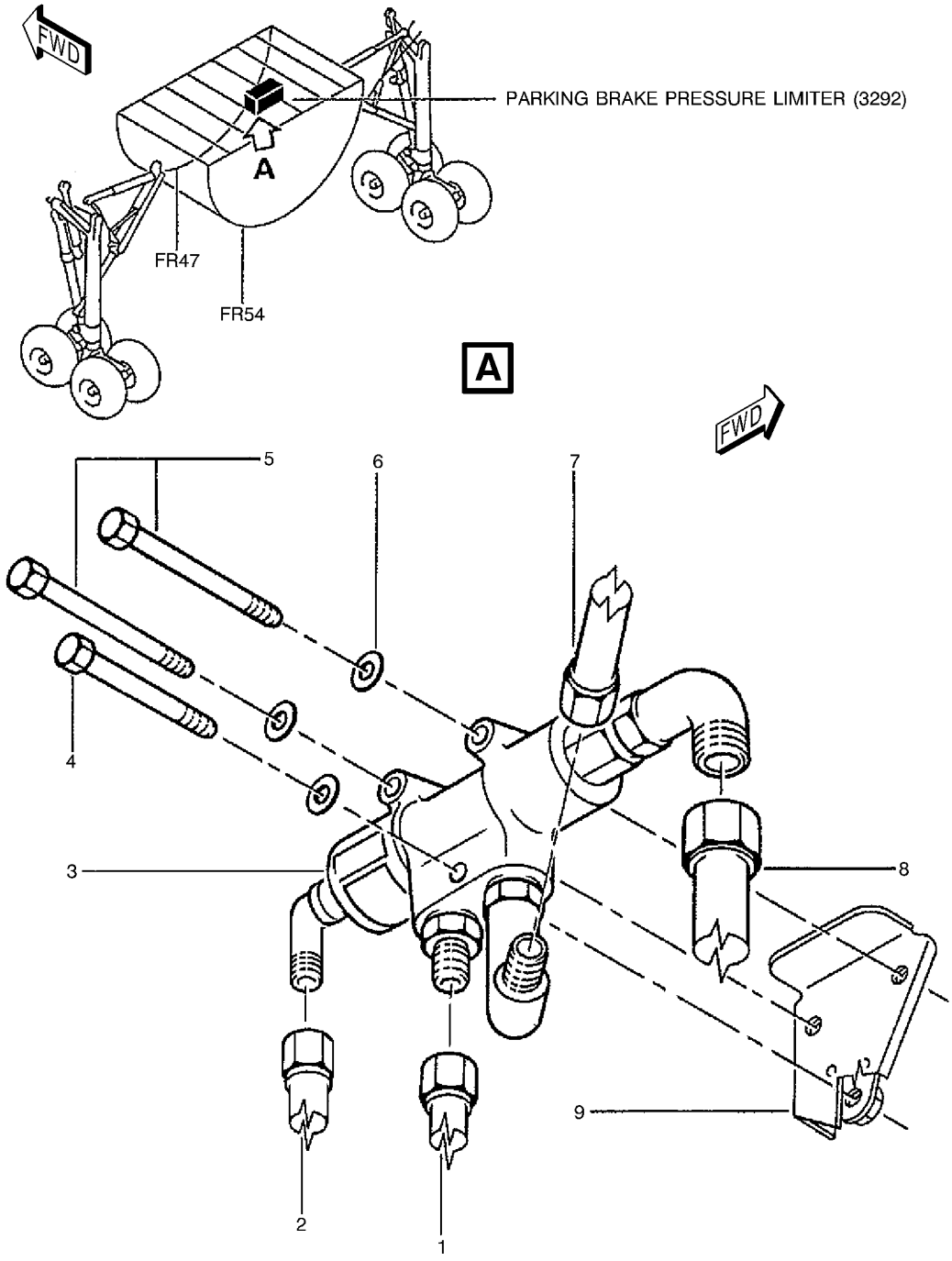
(1)Position pressure limiter (3) on its mount (9).
(2)Support pressure limiter (3) and install washers (6) and bolts (4) and (5).
(3)Remove blanking caps/plugs from lines (1), (2), (7) and (8) and from pressure limiter (3).
(4)Connect hydraulic lines (1), (2), (7) and (8) to pressure limiter (3).
(5)Perform bleeding of alternate braking system from the flight compartment (Ref. 32-43-00, P. Block 301).

E. Test

(1)Carry out a Parking/Ultimate Emergency braking operational test. (Ref. 32-45-00, P. Block 501).
NOTE : Check pressure limiter 3292 for leakage at initial pressurization and upon completion of test.

F. Close-Up

(1)Remove hydraulic fluid container from hydraulics compartment.
(2)Make certain that working area is clean and clear of tools and miscellaneous items of equipment.
(3)Remove safety clips and tags and close circuit breakers 7GX, 6GL and 5GG.



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Parking Brake Pressure Limiter 3292
Figure 401

R

(4)Remove warning notices.
(5)Check fluid level in hydraulic reservoir and top up if necessary (Ref. 12-12-29, P. Block 1).
(6)Pressurize Yellow hydraulic reservoir (Ref. 29-14-00, P. Block 301).
(7)Close right main landing gear main door (Ref. 32-12-11, P. Block 301).
(8)Remove access platform.
(9)Remove all ground handling and maintenance equipment, standard and special tools, together with ground power and replenishing equipment, all access equipment and miscellaneous items.

DUAL SHUTTLE VALVE (3294) - REMOVAL/INSTALLATION

WARNING : CHECK THAT THE LANDING GEAR GROUND SAFETIES INCLUDING WHEEL CHOCKS ARE IN POSITION.

1. Equipment and Materials

ITEM	DESIGNATION
A.	Wheel Chocks
B.	Access Platform 2,60 m (8 ft. 7 in.)
C.	Hydraulic Fluid Container
D.	Blanking Caps
E.	Circuit Breaker Safety Clips
F.	Warning Notice
G. Material No. 11-002	Cleaning Agents (Ref. 20-31-00)
Referenced Procedures	
- 12-12-29, P. Block 1	Hydraulics
- 29-10-00, P. Block 301	Main Hydraulic Power-Pressurization/ Depressurization
- 29-14-00, P. Block 301	Hydraulic Reservoir Pressurizing System
- 32-12-11, P. Block 301	Main Gear Main Door - (Ground Door(s) Opening)
- 32-43-00, P. Block 301	Alternate Braking with Anti-Skid
- 32-45-00, P. Block 501	Parking/Ultimate Emergency Braking

2. Procedure

A. Job Set-Up
(1)Make certain that wheel chocks are in position.
(2)On mechanical center pedestal 9VU
- make certain that **PARKING BRAKE** control handle is in normal (released) position and prohibit its operation by displaying a warning notice.

(3)Open right main landing gear main door (Ref. 32-12-11, P. Block 301).
(4)Open, safety and tag the following circuit breakers :

PANEL	SERVICE	IDENT.	LOCATION
133VU	HYDRAULIC-BRAKES SYSTEM CTL UNIT CTL WARN	5GG	333/T56
133VU	HYDRAULIC-PTU CTL G/Y	6GL	332/U60
133VU	HYDRAULIC-ACCU PRESS CTL AND CARGO DOOR PUMP	7GX	333/T51

(5)Position access platform
(6)Depressurize Yellow hydraulic system (Ref. 29-10-00, P. Block 301) and prohibit its pressurization by displaying a warning notice :
- on Yellow hydraulic system ground connectors
- on panel 427VU to prohibit energization of **PWR TRANSF** unit (**R PTU** pushbutton switch).

(7)Depressurize Yellow hydraulic reservoir (Ref. 29-14-00, P. Block 301) and prohibit its pressurization by displaying a warning notice :

- on reservoir pressurization connector
- on panel 429VU prohibiting APU starting.

(8)Depressurize make system accumulators 3125 and 3126 by means of relief valve 3067 manual control located on pressurization manifold 3060.

(9)Gain access to dual shuttle valve 3294 to be removed (zone 148)

(10)Install hydraulic fluid container

B. Removal

(Ref. Fig. 401)

(1)Mark and disconnect hydraulic lines (1), (2), (5), (8) and (9). Blank open line ends and ports on dual shuttle valve (4).

(2)Remove dual shuttle valve (4)

(a)Support dual shuttle valve (4) and remove bolts (7) and washers (6).

(b)Remove dual shuttle valve (4)

C. Preparation of Replacement Component

(1)Depreserve replacement component by removing external protective coverings.

(2)Clean dual shuttle valve interface and/or adjacent area with Material No.11-002 (Ref. 20-31-00) and dry with filtered compressed air.

WARNING : TAKE ALL NECESSARY PRECAUTIONS TO PREVENT CONTAMINATION THROUGH SHUTTLE VALVE PORTS.

(3)If replacement component is supplied without hydraulic connectors, remove connectors from removed component, clean and check them for condition and install in replacement component together with new seals.

NOTE : The dual shuttle valve 3294 is filled with aircraft system hydraulic fluid (Ref. 20-31-00)

D. Installation

(1)Position dual shuttle valve (4) on its mount (3).

(2)Hold dual shuttle valve (4) in position and install washers (6) and bolts (7).

(3)Remove blanking caps/plugs from lines (1), (2), (5), (8) and (9) and from dual shuttle valve (4) ports.

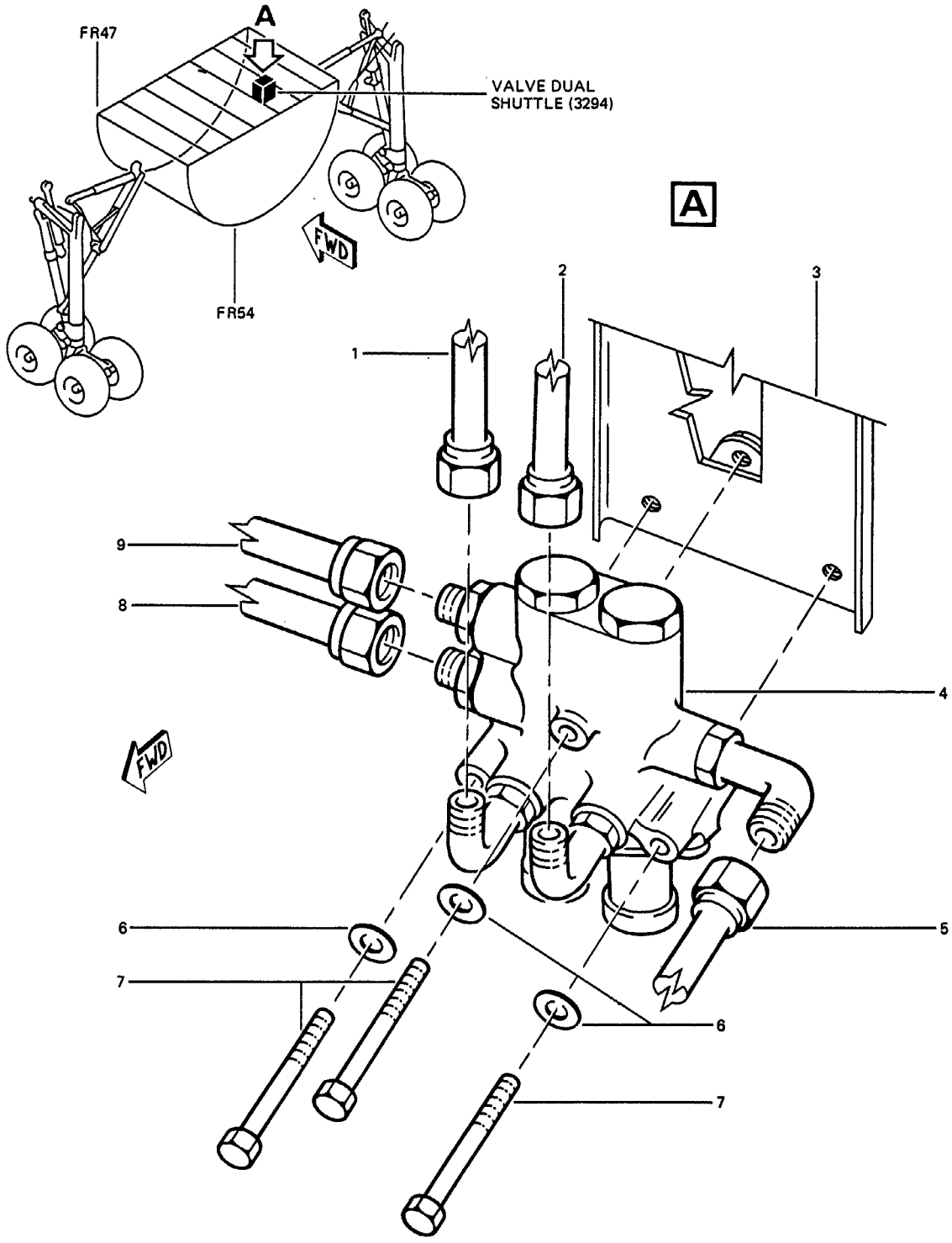
(4)Connect hydraulic lines (1), (2), (5), (8) and (9) to dual shuttle valve (4).

(5)Perform bleeding of alternate braking system from the flight compartment (Ref. 32-43-00, P. Block 301).

E. Test

(1)Make certain that the following circuit breakers are closed.

PANEL	SERVICE	IDENT.	LOCATION
128VU	ACCU PRESS/CTL &/CARGO DOOR/PUMP	7GX	802/P70 or 333/T51
101VU	ELEC/HYD/PUMP	23GX	802/B 5
128VU	YELLOW BRK/TRIPLE/PRESS/IND	70GG	802/P72 or 333/T60



Dual Shuttle Valve 3294
Figure 401

R (2)Perform operational test of parking/ultimate emergency braking
R (Ref. 32-45-00, P. Block 501).

F. Close-Up
(1)Remove hydraulic fluid container from hydraulics compartment
(2)Make certain that working area is clean and clear of tools and miscellaneous items of equipment.
(3)Remove safety clips and tags and close circuit breakers 6GL and 5GG.
(4)Remove warning notices.
(5)Check fluid level in hydraulic reservoir, and top up if necessary (Ref. 12-12-29, P. Block 1).
(6)Pressurize Yellow hydraulic reservoir (Ref. 29-14-00, P. Block 301).
(7)Close right main landing gear main door (Ref. 32-12-11, P. Block 301).
(8)Remove access platform.
(9)Remove all ground handling and maintenance equipment, standard and special tools, replenishing equipment, all access equipment and miscellaneous items.

PARKING BRAKE CONTROL LINKAGE - REMOVAL/INSTALLATION

WARNING : CHECK THAT THE LANDING GEAR GROUND SAFETIES INCLUDING WHEEL CHOCKS ARE IN POSITION.
BEFORE APPLYING OR RELIEVING HYDRAULIC SYSTEM PRESSURE, MAKE CERTAIN THAT THE TRAVEL RANGES OF THE CONTROL SURFACES ARE CLEAR.
BEFORE PRESSURIZING HYDRAULIC SYSTEMS, CHECK THAT ALL CONTROLS ARE SET TO CORRESPOND WITH THE ACTUAL POSITION OF THE SERVICES THEY OPERATE.
BEFORE POWER IS SUPPLIED TO THE AIRCRAFT MAKE CERTAIN THAT ELECTRICAL CIRCUITS UPON WHICH WORK IS IN PROGRESS ARE ISOLATED.
BEFORE PRESSURIZING HYDRAULIC SYSTEMS, MAKE CERTAIN THAT HYDRAULIC SYSTEM UNDER MAINTENANCE HAS BEEN ISOLATED.

1. Cables

A. Equipment and Materials

ITEM	DESIGNATION
(1)98A27901002000	Pin - Rigging, Rudder Control
(2)98A27901009000	Pin - Rigging, Parking Brake Control
(3)	Wheel Chocks
(4)	Warning Notice
(5)	Access Platform 2.60 m. (8 ft. 7 in.)
(6)	Safety Barriers
Referenced Procedures	
- 12-12-29, P. Block 1	Hydraulics
- 29-10-00, P. Block 301	Main Hydraulic Power - Pressurization/Depressurization
- 29-14-00, P. Block 301	Hydraulic Reservoir Pressurizing System
- 32-12-11, P. Block 301	Main Gear Main Door - (Ground Door(s) Opening)
- 32-22-11, P. Block 301	Nose Gear Main Door - (Ground Door(s) Opening)
- 32-45-00, P. Block 501	Parking/Ultimate Emergency Braking

B. Procedure

(1)Job set-Up

(a)Make certain that the wheel chocks are in position.

(b)On panel 4VU :

- make certain that landing gear Normal control lever is in DOWN position and prohibit its operation by displaying a warning notice.

(c)Between First Officer's and Third Occupant's seats

- make certain that landing gear Free Fall extension control handle is in Normal position.

(d)On panel 9VU, on center pedestal :

- make certain that BRAKING BRAKE control handle is in Normal position.

(e)Position access platforms.

(f)Position safety barriers prohibiting access to door travel ranges.
WARNING : MAKE CERTAIN THAT THE DOOR TRAVEL RANGES ARE CLEAR.

(g)Open right main gear door and nose gear doors (Ref. 32-12-11, P. Block 301 and 32-22-11, P. Block 301).

R (h)Depressurize Yellow hydraulic reservoir (Ref. 29-10-00, P. Block 301) and prohibit its pressurization by displaying a warning notice :
- on Yellow hydraulic system ground connector
- on panel 427VU to prohibit energization of power transfer unit (right PTU pushbutton switch).

(j)Depressurize Yellow reservoir (Ref. 29-14-00, P. Block 301) and prohibit its pressurization by displaying a warning notice :
- on panel 429VU to prohibit APU starting
- on reservoir pressurizatrion connector.

(k)Depressurize brake power accumulators 3125 and 3126 through manual control on pressure relief valve 3067 located on pressure manifold 3060 and prohibit pressurization by displaying a warning notice on panel 9VU, on PARKING BRAKE/ACCU PRESS pushbutton switch.

(2)Removal of cable runs
(Ref. Fig. 401)

(a)Immobilize cable quadrant (8) with rigging pin 98A27901009000.

(b)Immobilize cable quadrant (9) with rigging pin 98A27901002000.

(c)Unscrew turnbuckles and disengage end fittings of sections to be removed.

(d)Disassemble upper sections of fairleads.

(e)Disassemble cable guards mounted on pulleys.

(f)A pressure seal, FR15A

1 Cut and remove lockwire and remove bolt (1). Retain washers (2).

2 Separate flange (4) from flange (3).

NOTE : Flange (3) remains on structure.

3 Remove circlip (6), sleeve (7) and separate the two halves of cable guide (5).

(g)On both cable quadrants, remove cable end fittings from retaining notches.

(h)Remove both cable sections.

(j)Retain sleeve (7) and flange (4).

(3)Installation of cable runs (Ref. Fig. 401)

(a)Engage cables in pressure seals over pulleys and on cable guards. Insert cable end fittings in retaining notches on cable quadrants.

(b)At pressure seal, FR15A
- insert cable.

CAUTION : DO NOT FORGET TO PLACE FLANGE (4) AND SLEEVE (7). FLANGE (3) REMAINS ON STRUCTURE. MAKE CERTAIN THAT FLANGE (4) AND SLEEVE (7) ARE CORRECTLY POSITIONED.

(c)Install upper sections of fairleads. Tighten nuts.

(d)Secure cable guards on pulley mounts.

(e)On pressure seal, at FR15A

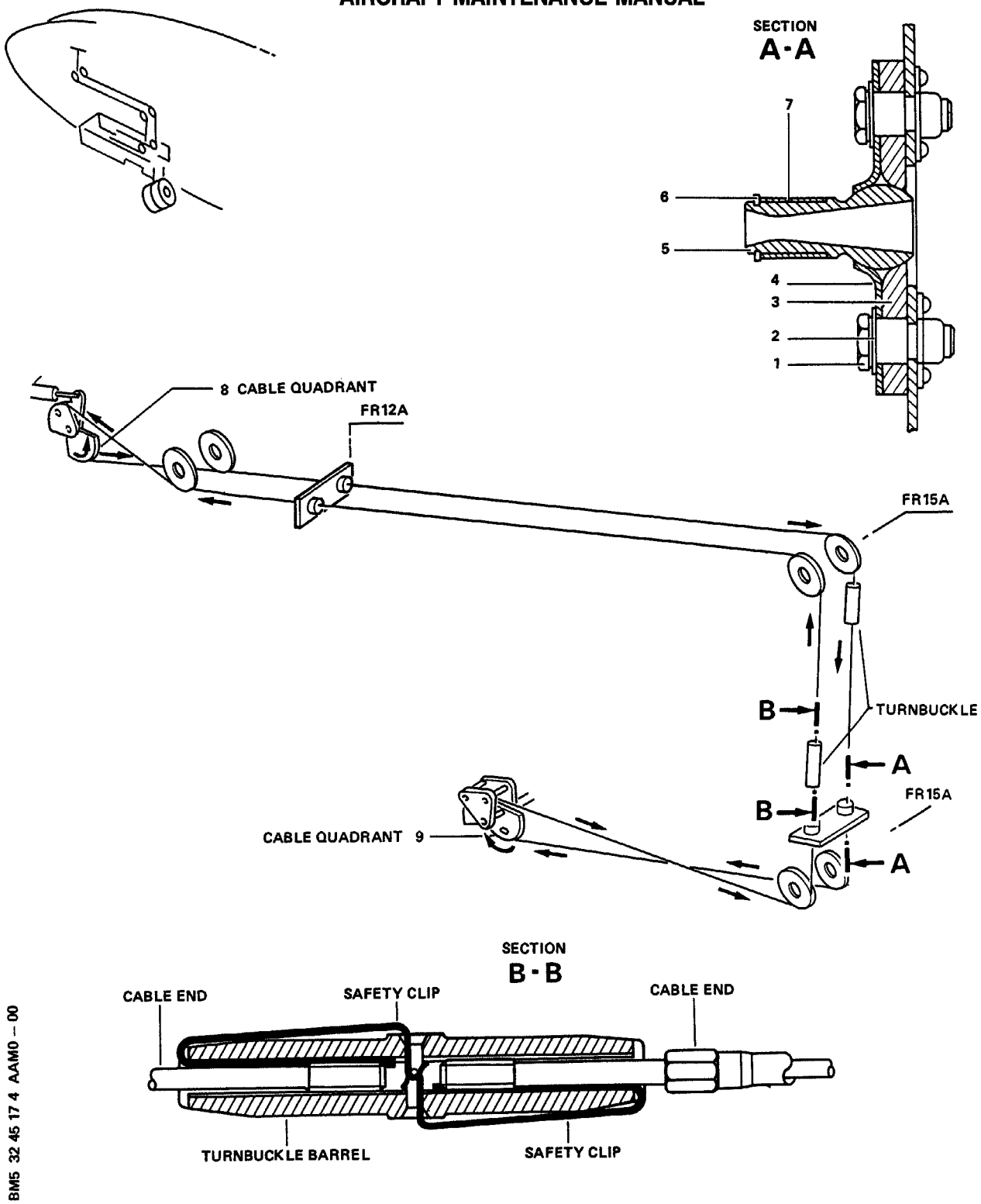
1 Equip cable with cable guide halves (5) maintained by sleeve (7) and circlip (6).

NOTE : Flange (3) is in position on structure.

2 Install flange (4) and washers (2). Tighten bolts (1).

(f)Insert threaded end fittings into turnbuckle barrels and progressively and simultaneously tighten turnbuckles until locking equipment on tension regulator quadrants can be disengaged.

NOTE : Make certain that fairlead ball ends of pressure seals are free to rotate and that cables freely slide in cable pressure seals.



Parking Brake Control Linkage
Figure 401

If not, replace pressure seal by a new one.

(g)Remove the two rigging pins 98A27901009000 and 98A27901002000.

(h)Apply and release **PARKING BRAKE** control handle several times in order to stabilize the linkage.

(3)Adjustment

(a)Proceed with cable tension adjustment (Ref. 32-45-00, P. Block 501).

(4)Test

(a)Carry out a parking braking operational test (Ref. 32-45-00, P. Block 501).

(b)Safety cable turnbuckles and pressure seal bolts (1).

(5)Close-up

(a)Make certain that working area is clean and clear of tools and miscellaneous item of equipment.

(b)Pressurize Yellow hydraulic reservoir (Ref. 29-14-00, P. Block 301).
WARNING : MAKE CERTAIN THAT THE DOOR TRAVEL RANGES ARE CLEAR.

(c)Close landing gear doors (Ref. 32-12-11, P. Block 301 and 32-22-11, P. Block 301).

(d)Check fluid level in hydraulic reservoirs. Replenish if necessary (Ref. 12-12-29, P. Block 1).

(e)Remove warning notices.

(f)Close access doors remove access platform and safety barriers.

(g)Remove all ground handling and maintenance equipment, standard and special tools, together with ground power and replenishing equipment, all access equipment and miscellaneous items.

PARKING BRAKE QUADRANT - REMOVAL/INSTALLATION

WARNING : CHECK THAT THE LANDING GEAR GROUND SAFETIES INCLUDING WHEEL CHOCKS ARE IN POSITION.
BEFORE APPLYING OR RELIEVING HYDRAULIC SYSTEM PRESSURE, MAKE CERTAIN THAT THE TRAVEL RANGES OF THE CONTROL SURFACES ARE CLEAR.
BEFORE PRESSURIZING HYDRAULIC SYSTEMS, CHECK THAT ALL CONTROLS ARE SET TO CORRESPOND WITH THE ACTUAL POSITION OF THE SERVICES THEY OPERATE.
BEFORE POWER IS SUPPLIED TO THE AIRCRAFT MAKE CERTAIN THAT ELECTRICAL CIRCUITS UPON WHICH WORK IS IN PROGRESS ARE ISOLATED.
BEFORE PRESSURIZING HYDRAULIC SYSTEMS, MAKE CERTAIN THAT HYDRAULIC SYSTEM UNDER MAINTENANCE HAS BEEN ISOLATED.

1. Equipment and Materials

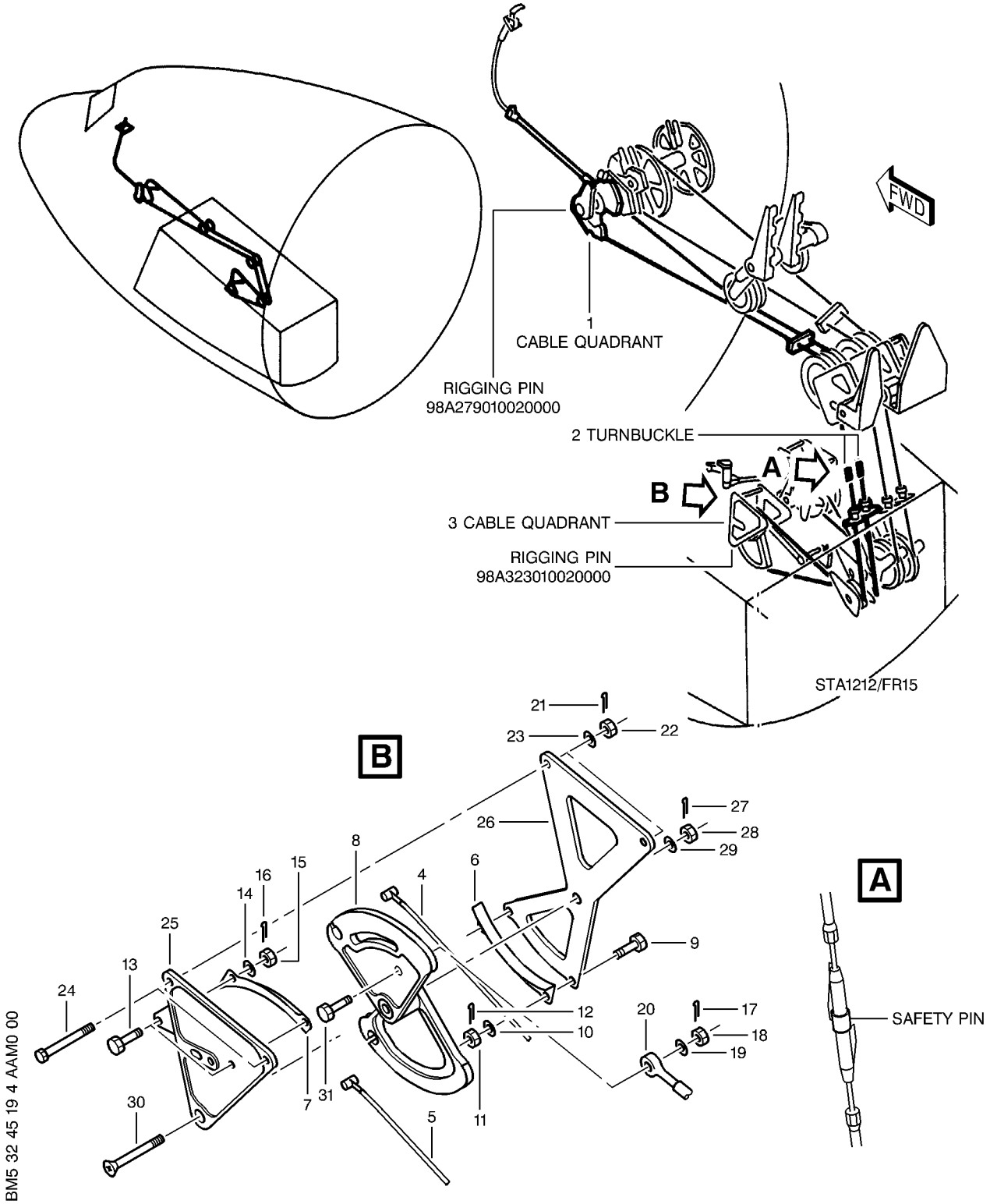
ITEM	DESIGNATION
A. 98A27901002000	Pin - Rigging, Rudder Control
B. 98A32301009000	Pin - Rigging, Parking Brake Control
D.	Wheel Chocks
E.	Access Platform (2 m - 2,60 m) (6 ft. 7 in. 8 ft. 7 in.)
F.	Warning Notices
G.	Safety Barriers
H. Material No. 11-002	Cleaning Agents (Ref. 20-31-00)
Referenced Procedures	
- 29-10-00, P. Block 301	Main Hydraulic Power - Pressurization/ Depressurization
- 32-12-11, P. Block 301	Main Gear Main Door - (Ground Door(s) Opening)
- 32-22-11, P. Block 301	Nose Gear Main Door - (Ground Door(s) Opening)
- 32-45-00, P. Block 501	Parking/Ultimate Emergency Braking

2. Procedure

R A. Job Set-Up
(1)Make certain that wheel chocks are in position.
(2)On panel 4VU :
- make certain that landing gear control lever is in DOWN position and prohibit its operation by displaying a warning notice.
(3)Position forward cargo compartment door access platform.
(4)Open access door 132AZ.
(5)Between First Officer's and Third Occupant's seats :
- make certain that landing gear Free Fall extension control handle is in Normal position and prohibit its operation by displaying a warning notice.
(6)On mechanical center pedestal 9VU :
- make certain that PARKING BRAKE control handle is in Normal (released) position and prohibit its operation by displaying a warning notice.
(7)Position safety barriers and left landing gear access platform.
WARNING : MAKE CERTAIN THAT THE DOOR TRAVEL RANGES ARE CLEAR.
(8)Open left main gear door, and nose gear doors (Ref. 32-12-11, P. Block

301 and Ref. 32-22-11, P. Block 301).
WARNING : WHEN DOORS ARE OPEN MAKE CERTAIN THAT SAFETY COLLARS ARE POSITIONED ON DOOR ACTUATING CYLINDERS.
(9)Depressurize Green hydraulic system (Ref. 29-10-00, P. Block 301) and prohibit its pressurization by displaying a warning notice :
- on Green system ground connectors
- on panel 427VU to prohibit energization of Green electric pumps (ELEC PUMPS pushbutton switch).
(10)Depressurize Yellow hydraulic system (Ref. 29-10-00, P. Block 301) and prohibit its pressurization by displaying a warning notice :
- on Yellow system ground connectors
- on panel 427VU to prohibit energization of Yellow power transfer unit (Green/Yellow PTU pushbutton switch).
(11)Depressurize braking system by operating pressure relief valve 3067 located on pressure manifold 3060.
(12)Connect electrical ground power unit.
(13)Position hydraulic fluid container.
WARNING : MAKE CERTAIN THAT YELLOW HYDRAULIC SYSTEM IS NOT SUPPLIED.

R B. Removal
(Ref. Fig. 401)
(1)Remove cables (4) and (5) from cable quadrant (8).
(a)Install rigging pin 98A27901009000 in cable quadrant (1) in zone 122 at STA1187 (FR14A).
(b)Install rigging pin 98A32301002000 in cable quadrant (3) in zone 124 at STA1212 (FR15).
(c)Disengage pins from cable tension regulators and release regulators.
(d)Remove protective covers (6) and (7) from mounting fittings (25) and (26).
1 Remove and delete cotter pin (12) from nut (11), remove nut (11) and washer (10), remove bolt (9) and disengage protective cover (6) from mounting fitting (26).
2 Remove and delete cotter pin (16) from nut (15), remove nut (15) and washer (14), remove bolt (13) and disengage protective cover (7) from mounting fitting (25).
(e)Remove cables (4) and (5) from quadrant (8).
(2)Remove quadrant (8).
(a)Remove rigging pin 98A32301002000 from cable quadrant (3).
(b)Remove and delete cotter pin (27) from nut (28), remove nut (28) and washer (29), remove bolt (30). Let quadrant (8) in position.
(3)Remove mounting fittings (25) and (26).
(a)Remove and delete cotter pins (21) from nuts (22), remove nuts (22) and washers (23), remove bolts (24) and mounting fittings (25) and (26). Disengage quadrant (8).
(4)Remove adjustable rod (20).
(a)Remove and delete cotter pin (17) from nut (18), remove nut (18) and washer (19), remove bolt (31), disengage adjustable rod (20) from quadrant (8).
(b)Stow adjustable rod (20) in an adjacent part of the aircraft to prevent damage.



Parking Brake Quadrant
Figure 401

R C. Preparation of Replacement Component
(1)Clean all items using Cleaning Agent (Material No. 11-002) and dry with dry compressed air.
(2)Make certain that replacement items are in good condition.

R D. Installation
(Ref. Fig. 401)
(1)Install adjustable rod (20).
(a) Install bolt (31) on quadrant (8).
(b) Engage adjustable rod (20) on bolt (31), install washer (19), install and tighten nut (18) and safety with a new cotter pin (17).
(2)Install quadrant (8).
(a) Position quadrant (8) between mounting fittings (25) and (26).
(b) Engage bolt (30), install washer (29), install and tighten nut (28) and safety with a new cotter pin (27).
(3)Install mounting fittings (25) and (26).
(a) Position mounting fittings (25) and (26).
(b) Engage bolts (24), install washers (23), install and tighten nuts (22) and safety with new cotter pins (21).
(4)Install cables (4) and (5).
(a) Immobilize quadrant (8) by means of rigging pin 98A32301002000.
(b) Engage cables (4) and (5) in their respective cable quadrants.
(c) Install protective cover (6), engage bolt (9), install washer (10) and nut (11), tighten nut and safety with a new cotter pin (12).
(d) Install protective cover (7), engage bolt (13), install washer (14) and nut (15), tighten nut and safety with a new cotter pin (16).
(e) In zone 124 at STA1212 (FR15) :
Engage cable ends in cable tension regulators.
Progressively tighten regulators to adjust cable tension (Ref. 32-45-00, P. Block 501, Para. 1.D.(2)).
(f) Safety cable tension regulators with pins. Check for proper engagement of pins in regulator holes.
(g) Check that cables are correctly installed over their entire length.
(h) In zone 124, remove rigging pin 98A32301002000.
(j) In zone 122, remove rigging pin 98A27901009000.

E. Test
(1)Carry out an operational test of parking/ultimate emergency braking (Ref. 32-45-00, P. Block 501).

F. Close-Up
(1)Make certain that working area is clean and clear of tools and miscellaneous items of equipment.
WARNING : MAKE CERTAIN THAT DOOR TRAVEL RANGES ARE CLEAR.
(2)Close landing gear doors (Ref. 32-12-11, P. Block 301 or 32-22-11, P. Block 301).
(3)Remove warning notices.
(4)Close access doors, remove access platforms and safety barriers.
(5)Remove all ground handling and maintenance equipment, standard and special tools, together with ground power and replenishing equipment, all access equipment and miscellaneous items.

BRAKE SYSTEM TEMPERATURE - DESCRIPTION AND OPERATION

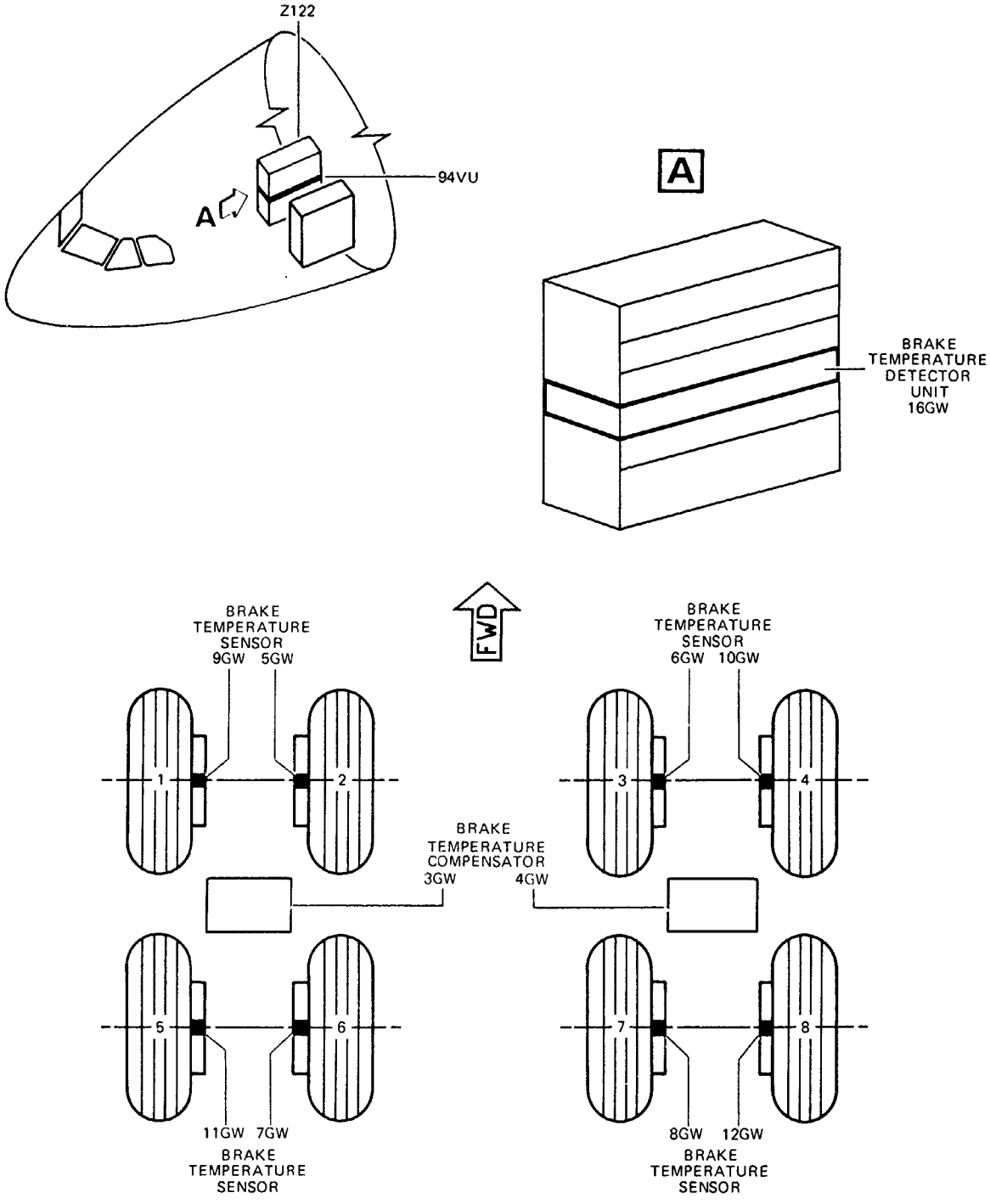
1. General

The system serves to measure the temperature at each of the eight brakes, provide temperature readout on the right **ECAM** display unit, generate overheat warning and, if necessary, warn the flight crew via the left **ECAM** display unit that takeoff should be delayed or gear extended.

2. Component Location

(Ref. Fig. 001)

FIN	FUNCTIONAL DESIGNATION	PANEL	ZONE	ACCESS DOOR	ATA REF.
3GW	COMPENSATOR-BRK TEMP, L		731		
4GW	COMPENSATOR-BRK TEMP, R		741		
5GW	SENSOR-BRAKE TEMP, WHEEL 2		731		32-42-27
6GW	SENSOR-BRAKE TEMP, WHEEL 3		741		32-42-27
7GW	SENSOR-BRAKE TEMP, WHEEL 6		731		32-42-27
8GW	SENSOR-BRAKE TEMP, WHEEL 7		741		32-42-27
9GW	SENSOR-BRAKE TEMP, WHEEL 1		731		32-42-27
10GW	SENSOR-BRAKE TEMP, WHEEL 4		741		32-42-27
11GW	SENSOR-BRAKE TEMP, WHEEL 5		731		32-42-27
12GW	SENSOR-BRAKE TEMP, WHEEL 8		741		32-42-27
16GW	DET UNIT-BRAKE TEMP	94VU	122		



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Brake System Temperature - Component Location
Figure 001

3. Description and Operation

The brake temperature detection system comprises :
- 8 temperature sensors (1 per brake)
- 2 compensators (1 per main gear)
- 1 brake temperature detection unit

Each brake temperature sensor is connected by means of a two-wire cable to a compensator equipped with a platinum resistor. The brake temperature detection unit processes the signals from the two compensators and the 8 temperature sensors and provides the indicating systems with the temperature at each of the eight brakes and the brakes HOT warning.

A. Temperature Sensor (Ref. 32-40)
(Ref. Fig. 002)
The chromel-alumel temperature sensor delivers a voltage proportional to the temperature difference between the cold junction and the hot junction. A signal proportional to the brake temperature can only be obtained if the term k theta j is cancelled from the equation.
This is achieved by means of the compensator resistor.

B. Compensators
(Ref. Fig. 003)
The compensators are comprised of a platinum resistor supplied with a constant current. The voltage at the terminals varies linearly function of the temperature theta j.

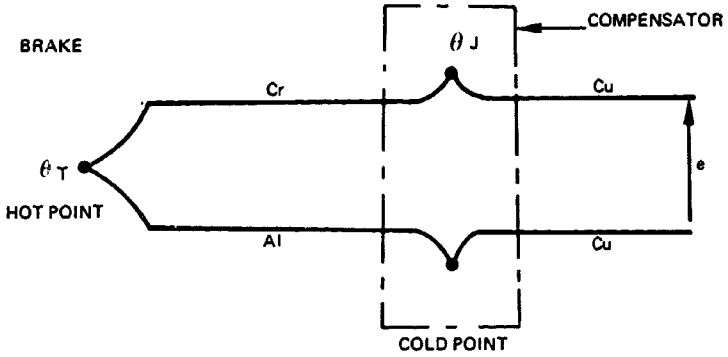
C. Brake Temperature Detection Unit
The brake temperature detection unit is a 1/4 ATR short case equipped with the printed circuit assemblies required to process the information from the temperature sensors and compensator resistors. Analog technology is used.

4. Component Location

The temperature sensor located on each brake is housed in the torque tube.
A compensator is mounted on each main gear.
The brake temperature detection unit is located on shelf 94VU in electronics rack 90VU

5. Principle of Operation

(Ref. Fig. 004)
(Ref. Fig. 005)
The brake temperature detection unit receives the voltages from the 8 temperature sensors and the 2 compensator resistors.
After processing, the logic circuits deliver a voltage proportional to the temperature of each brake heat sink. This voltage varies between 0 and 5V corresponding to a temperature range of 0 to 700°C (0 to 1292°F).
The eight voltage values are compared to a voltage corresponding to an overheat threshold of 300°C (572°F) (adjustable by pin programming, Ref. para. 5.B.).
If the temperature exceeds 300°C (572°F), a TEMP HI signal is sent to the left ECAM display unit and the HOT warning lights come on on the center instrument panel.
The 8 voltage values are sent to the right ECAM display unit.



$$e = k\ (\theta_T - \theta_j)$$

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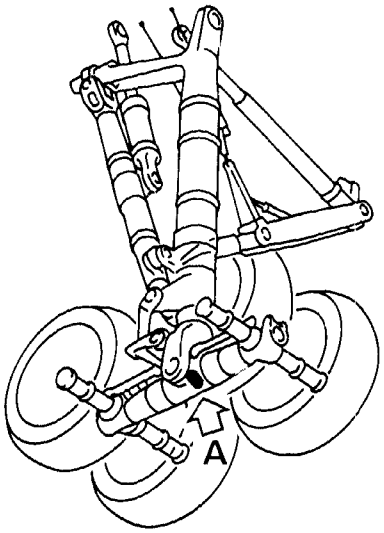
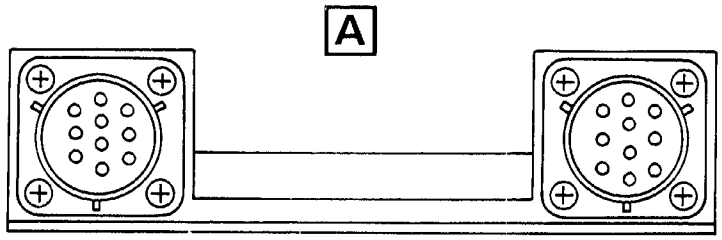
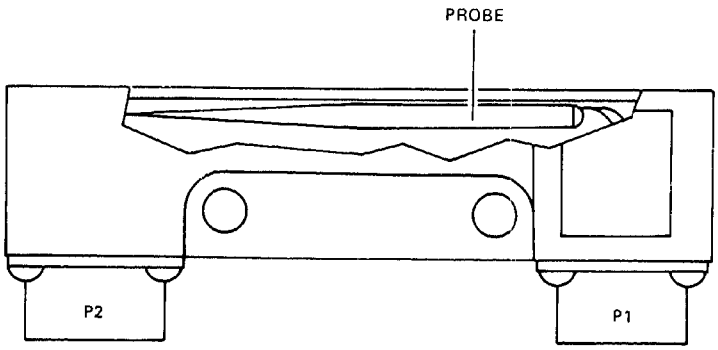
Temperature Sensor - Principle
Figure 002







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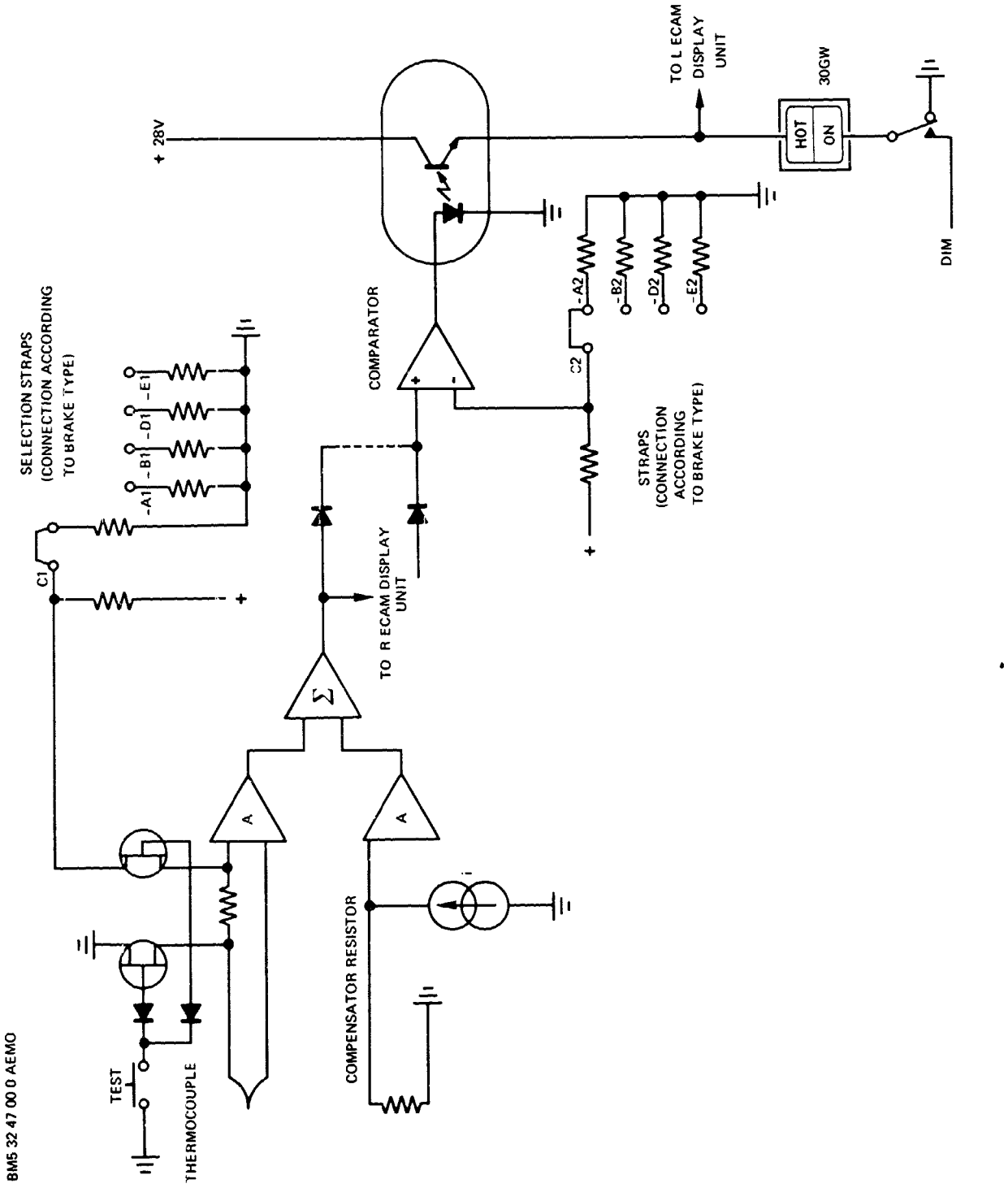
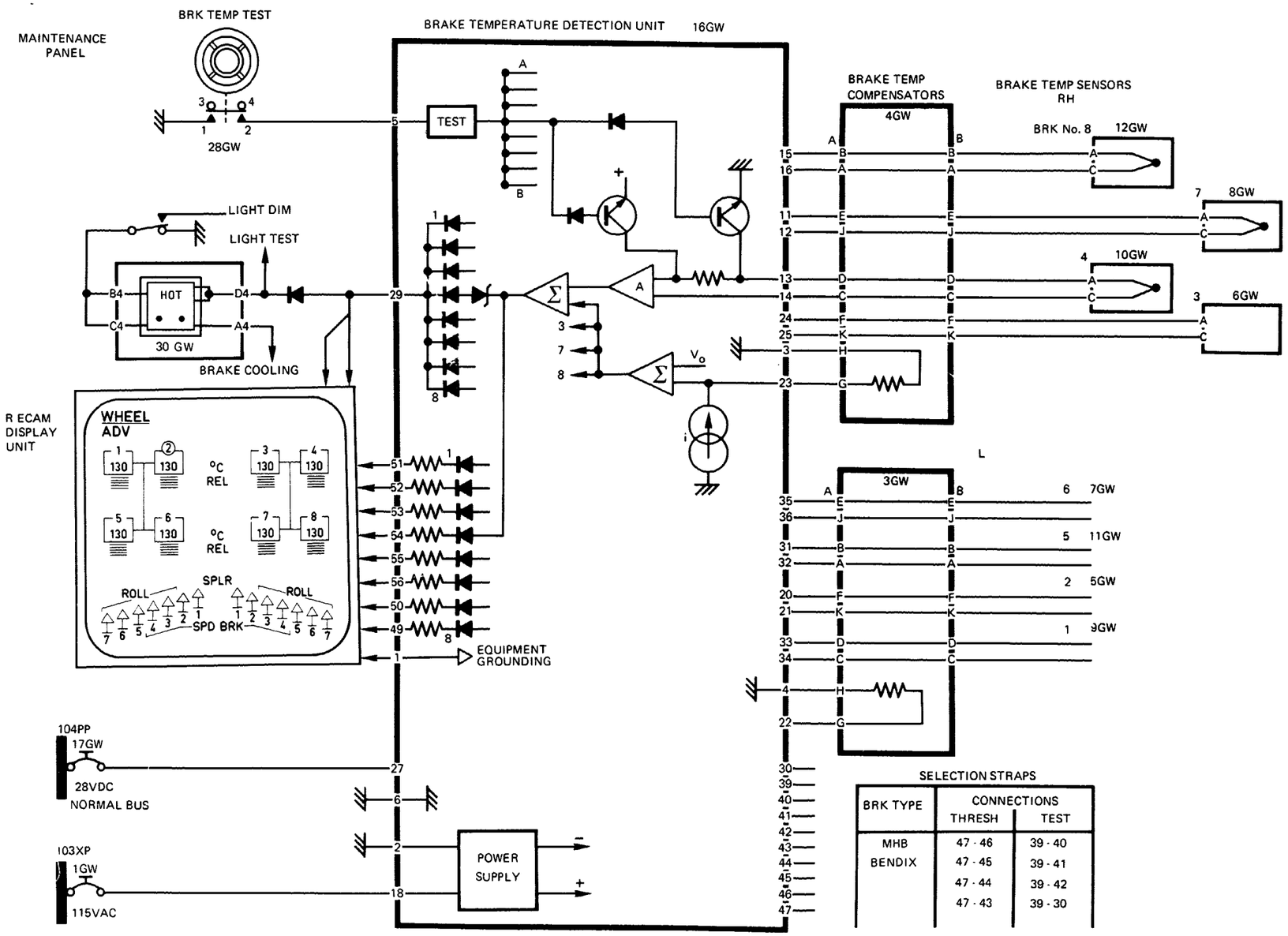
Compensator
Figure 003



Brake Temperature Detection System - Logic
Figure 004



Brake Temperature System - Schematic
Figure 005

When the brake temperature remains lower than the overheat detection threshold, the temperature values are displayed green. The highest temperature is surrounded with a green circle (if > 100°C).

R A. Test
R A pushbutton located on the side console serves to perform the test. A
R voltage exceeding the overheat threshold by 100°C ±10°C is sent in series
R to each temperature sensor line. During the test :
- the brakes excessive temperature instructions are displayed on the left ECAM display unit
- the amber HOT legend comes on
- the 8 temperature values are displayed in amber on the right ECAM display unit.

The test also serves to check the line continuity of each temperature sensor. In the event of cable rupture the temperature displayed on the right ECAM display unit is 0°C.

B. Selection Straps
The overheat thresholds vary depending on the brake type and sensor installation. To enable a single type of brake temperature detection unit to be used, the rear connector is equipped with 8 possible shunt configurations
- 4 for selection of the overheat threshold
- 4 for adapting the associated test

C. Temperature Sensor-to-Detection Unit Connections
All connections from the temperature sensors to the compensators are in chromel-alumel and all connections from the compensators to the brake temperature detection unit are in copper
- In the event of rupture of at least one wire, the temperature displayed on the right ECAM display unit is 0°C.
- In the event of a short circuit between the two connecting wires, the temperature indicated is nul and the failure is not detected during the test (low probability).
- In the event of a short circuit between the line and ground, the temperature displayed on the right ECAM display unit is 0°C or real brake temperature depending on which of the two wires is grounded.

1. Operational Test

A. Reason for the Job
(1)Test of brakes HOT indicating.
(2)Test of HOT legend dimming circuit.
(3)Test of brake temperature sensor.

B. Equipment and Materials

ITEM	DESIGNATION
(1)	Warning Notice
Referenced Procedure - 24-41-00, P. Block 301	AC External Power Control

C. Procedure
(1)Job set-up
(a)On panel 4VU
- make certain that landing gear control lever is in DOWN position and prohibit its operation by displaying a warning notice.
(b)Make certain that the following circuit breakers are closed :

PANEL	SERVICE	IDENT.	LOCATION
132VU	LIGHTING/INT LT/ANN LT/DIM	198LT	324/L83
132VU	LIGHTING/INT LT/ANN LT/DIM	197LT	324/L84
132VU	LIGHTING/INT LT/ANN LT/TEST/MAN	1LP	324/L80
132VU	LIGHTING/INT LT/ANN LT/TEST/MAN	149LP	324/L82
133VU	HYDRAULIC/BRAKES/TEMP/DET/UNIT	1GW	335/R58
133VU	HYDRAULIC/BRAKES/TEMP/WARN	17GW	331/V54

(c)Energize the aircraft electrical network (Ref. 24-41-00, P. Block 301). Make certain that electronics racks ventilation is correct.
R (d)On panels 3VU and 5VU, cover the two photo-resistor cells 29LT and 30LT
R so as to simulate a variation in brightness.

D. Tests

R **ON A/C 101-200,

(1)Test of BRK HOT annunciator.

ACTION	RESULT
(a) On panel 436VU, place ANN LT switch in TEST position.	- On panel 400VU, HOT legend on BRK HOT annunciator comes on. NOTE : Other annunciator lights may come on.
(b) On panel 436VU, place ANN LT	- On panel 400VU, HOT legend on

ACTION	RESULT
switch in **BRT** position.	**BRK HOT** annunciator goes off.
(2)Test of **HOT** legend dimmimg.	

ACTION	RESULT
(a) On lateral panel, on panel **471VU**, hold **BRK TEMP/TEST** pushbutton switch pressed (in).	- On panel **400VU**, **HOT** legend on **BRK HOT** annunciator comes on.
(b) On panel **436VU**, place **ANN LT** switch in **DIM** position, then in **BRT** position (while holding **BRK TEMP/TEST** pushbutton switch pressed (in).	- On panel **400VU**, **HOT** legend on **BRK HOT** annunciator dims, then resumes normal brightness.
(c) On lateral panel, on panel **471VU**, release **BRK TEMP/TEST** pushbutton switch.	- On panel **400VU**, **HOT** legend on **BRK HOT** annunciator goes off.

R ****ON A/C ALL**

R Post **SB 32-2058** For **A/C** 101-200,

(1)Test of **BRK HOT** and fans **ON** indicating.

ACTION	RESULT
(a) On panel **436VU**, place **ANN LT** switch in **TEST** position.	- On panel **400VU**, on brakes **HOT** indicating and fan control pushbutton switch, **HOT** and **ON** legends come on. NOTE : Other annunciator lights may come on.
(b) On panel **436VU**, place **ANN LT** switch in **BRT** position.	- On panel **400VU**, **HOT** and **ON** legends go off.
(2)Test of **HOT** legend dimmimg.	

ACTION	RESULT
(a) On lateral panel, on panel **471VU**, hold **BRK TEMP/TEST** pushbutton switch pressed (in).	- On panel **400VU**, on brakes **HOT** indicating and fan control pushbutton switch, **HOT** legend comes on.
(b) On panel **436VU**, place **ANN LT**	- On panel **400VU**, **HOT** legend on

ACTION	RESULT
switch in **DIM** position, then in **BRT** position (while holding **BRK TEMP/TEST** pushbutton switch pressed (in)).	**BRK HOT** annunciator dims, then resumes normal brightness.
(c) On lateral panel, on panel **471VU**, release **BRK TEMP/TEST** pushbutton switch.	- On panel **400VU**, **HOT** legend on **BRK HOT** annunciator goes off.

**ON A/C ALL

(3)Test of brake temperature sensor

ACTION	RESULT
1. On panel **11VU**, on **ECAM** control panel - **SGU** pushbutton switches pressed in (**OFF** legends off). - Right display knob switched on - Call **WHEEL** page by pressing **WHEEL** pushbutton switch.	On right **ECAM** display unit - **WHEEL** page is displayed - brake temperature is approximately ambient temperature. NOTE : Resolution of **ECAM** indicating is 5°C

E. Close-Up

(1)De-energize the aircraft electrical network (Ref. 24-41-00, P. Block 301).

(2)Remove landing gear control lever warning notice.

2. Functional Test

A. Reason for the Job
(1)Test of brake HOT indicating (Ref. Operational Test).
(2)Test of HOT legend dimming circuit (Ref. Operational Test).
(3)Test of hot brake detection and warning (ECAM display units).

B. Equipment and Materials

ITEM	DESIGNATION
(1)	Warning Notice
Referenced Procedure - 24-41-00, P. Block 301	AC External Power Control

C. Procedure
(1)Job set-up
(a)On panel 4VU
- make certain that landing gear control lever is in DOWN position and prohibit its operation by displaying a warning notice.
(b)Check that the following circuit breakers are closed :

PANEL	SERVICE	IDENT.	LOCATION
21VU	ECAM/FLT WARN/MONITOR	4WW	108/B 6
21VU	ECAM/FWC1	7WW	108/B 8
21VU	ECAM/SDAC/PWR/SUPPLY	6WV	109/A 5
21VU	ECAM/SDAC/26 VAC/ESS	5WV	109/A 4
21VU	ECAM/SDAC/26 VAC/NORM/2	3WV2	109/A 3
21VU	ECAM/SDAC/26VAC/NORM/1	3WV1	109/A 2
21VU	ECAM/FWC2	32WW	109/A 8
132VU	LIGHTING/INT LT/ANN LT/DIM	198LT	324/L83
132VU	LIGHTING/INT LT/ANN LT/DIM	197LT	324/L84
132VU	LIGHTING/INT LT/ANN LT/TEST/MAN	1LP	324/L80
132VU	LIGHTING/INT LT/ANN LT/TEST/MAN	149LP	324/L82
133VU	HYDRAULIC/BRAKES/TEMP/DET/UNIT	1GW	335/R58
133VU	HYDRAULIC/BRAKES/TEMP/WARN	17GW	331/V54

(c)Energize the aircraft electrical network (Ref. 24-41-00, P. Block 301)
- Make certain that electronics racks ventilation is correct.
(d)On panel 11VU, call WHEEL page by pressing WHEEL pushbutton switch located on ECAM control panel.

D. Test
(1)Test of brake HOT indicating (Ref. Operational Test).
(2)Test of HOT legend dimming circuit (Ref. Operational Test).
(3)Hot brake detection and indicating.

ACTION	RESULT

ACTION	RESULT
**ON A/C 101-200,	
(a)On lateral panel, on panel 471VU - press BRK TEMP/TEST pushbutton switch.	- On panel 400VU, HOT legend comes on. - Single chime - MASTER CAUTION lights come on - On left ECAM display unit, the following message is displayed : BRAKES TEMP HI DELAY T.O. - On right ECAM display unit, temperature of the eight brakes is displayed amber. The temperature displayed for each brake is 400°C (752°F) above the brake ambient temperature, ± 30°C (89.6°F).
R **ON A/C ALL	
R Post SB 32-2058 For A/C 101-200,	
(a)On lateral panel, on panel 471VU - press BRK TEMP/TEST pushbutton switch.	- On panel 400VU, HOT legend comes on. - MASTER CAUTION lights come on. - On left ECAM display unit, the following message is displayed : BRAKES TEMP HI BRK FAN.....ON DELAY T.O. Single chime sounds - On right ECAM display unit, temperature of the eight brakes is displayed amber. The temperature displayed for each brake is 400°C (752°F) above the brake ambient temperature, ± 30°C (89.6°F).
**ON A/C ALL	
(b)On lateral panel, on panel 471VU, - release BRK TEMP/TEST pushbutton switch.	- Displays disappear on left and right ECAM display units. - On panel 400VU, HOT legend goes

ACTION	RESULT
	off. - On Captain and F/O main instrument panels 3VU and 5VU. MASTER CAUT lights go off.

E. Close-Up
(1)De-energize the aircraft electrical network (Ref. 24-41-00, P. Block 301).
(2)Remove landing gear control lever warning notice.

3. System Test

A. Reason for the Job
(1)Test of brake HOT indicating (Ref. Operational Test).
(2)Test of HOT legend dimming circuit (Ref. Operational Test).
(3)Test of brake temperature circuit.

B. Equipment and Materials

ITEM	DESIGNATION
(1)	Warning Notice
(2)	Measuring equipment (millivoltmeter)
(3)	Electrical Equipment : DC Generator (0 to 50 mV)
Referenced Procedure - 24-41-00, P. Block 301	AC External Power Control

C. Procedure
(1)Job set-up
(a)On panel 4VU
- make certain that landing gear control lever is in DOWN position and prohibit its operation by displaying a warning notice.
(b)Check that the following circuit breakers are closed :

PANEL	SERVICE	IDENT.	LOCATION
21VU	ECAM/FLT WARN/MONITOR	4WW	108/B 6
21VU	ECAM/FWC1	7WW	108/B 8
21VU	ECAM/SDAC/PWR/SUPPLY	6WV	109/A 5
21VU	ECAM/SDAC/26VAC/ESS	5WV	109/A 4
21VU	ECAM/SDAC/26 VAC/NORM/2	3WV2	109/A 3
21VU	ECAM/SDAC/26 VAC/NORM/1	3WV1	109/A 2
21VU	ECAM/FWC2	32WW	109/A 8
132VU	LIGHTING/INT/ANN LT/DIM	198LT	324/L83
132VU	LIGHTING/INT LT/ANN LT/DIM	197LT	324/L84
132VU	LIGHTING/INT LT/ANN LT/TEST/MAN	1LP	324/L80
132VU	LIGHTING/INT LT/ANN LT/TEST/MAN	149LP	324/L82
133VU	HYDRAULIC/BRAKES/TEMP/DET/UNIT	1GW	335/R58
133VU	HYDRAULIC/BRAKES/TEMP/WARN	17GW	331/V54

(c)Energize the aircraft electrical network (Ref. 24-41-00, P. Block 301).
- Make certain that electronics racks ventilation is correct.

D. Test
(1)Test of brake HOT indicating (Ref. Operational Test).
(2)Test of HOT legend dimming circuit (Ref. Operational Test).
(3)Test of brake temperature circuit.
(a)Make certain that the following circuit breakers are open :

PANEL	SERVICE	IDENT.	LOCATION
133VU	HYDRAULIC/BRAKES/TEMP/DET/UNIT	1GW	335/R58
133VU	HYDRAULIC/BRAKES/TEMP/WARN	17GW	331/V54

(b)In zone 741 or 731, disconnect connector of one brake temperature sensor.
(c)Close circuit breakers 1GW and 17GW.
(d)On 11VU, call WHEEL page by pressing WHEEL pushbutton switch located on the ECAM control panel.

ACTION	RESULT
**ON A/C 101-200,	
(a)On lateral panel, on panel 471VU - press BRK TEMP/TEST pushbutton switch.	- On panel 400VU, HOT legend comes on. - Single chime - MASTER CAUTION lights come on - On left ECAM display unit, the following message is displayed : BRAKES TEMP HI DELAY T.O. - On right ECAM display unit, temperature of the eight brakes is displayed amber. The temperature displayed for each brake is 400°C (752°F) above the brake ambient temperature, ± 30°C (89.6°F).
R **ON A/C ALL	
R Post SB 32-2058 For A/C 101-200,	
(a)On lateral panel, on panel 471VU - press BRK TEMP/TEST pushbutton switch.	- On panel 400VU, HOT legend comes on. - MASTER CAUTION lights come on. - On left ECAM display unit, the following message is displayed : BRAKES TEMP HI BRK FAN.....ON DELAY T.O. Single chime sounds - On right ECAM display unit, temperature of the eight brakes is displayed amber. The tempera-

ACTION	RESULT
	ture displayed for each brake is 400°C (752°F) above the brake ambient temperature, ± 30°C (89.6°F).
**ON A/C ALL	
(b)On connector disconnected as per paragraph (b), connect : - DC generator with voltage adjusted to zero millivolts - a millivoltmeter, with polarity as follows : Terminal A : Negative Terminal C : Positive.	
**ON A/C 101-200,	
(c)On DC generator, increase voltage until, on panel 400VU, HOT legend comes on.	- On left ECAM display unit, the following is displayed : BRAKES TEMP HI DELAY T.O. - On right ECAM display unit, temperature displayed for the brake, the temperature sensor of which has been replaced by DC generator, is 300°C ± 15°C (572°F ± 59°F) (amber). This temperature corresponds to a voltage reading on millivoltmeter of 12.21mV ± 0.6 mV.
R **ON A/C ALL	
R Post SB 32-2058 For A/C 101-200,	
(c)On DC generator, increase voltage until, on panel 400VU, HOT legend comes on.	- On left ECAM display unit, the following is displayed : BRAKES TEMP HI BRK FAN ..... ON DELAY T.O. - On right ECAM display unit, temperature displayed for the

ACTION	RESULT
	brake, the temperature sensor of which has been replaced by DC generator, is 300°C ± 15°C (572°F ± 59°F) (amber). This temperature corresponds to a voltage reading on millivoltmeter of 12.21mV ± 0.6 mV.
**ON A/C ALL	
	On Captain and F/O main instrument panels 3VU and 5VU, MASTER CAUT lights come on. Single chime sounds.
NOTE : Subtract 0.041 mV per °C from this value when ambient temperature is higher than 0°C, add 0.041 mV when ambient temperature is lower than 0°C.	
(d)Increase generator voltage to 15 mV approx.	On right ECAM display unit, temperature displayed for corresponding brake is 368°C (694°F) approx.
**ON A/C 101-200,	
(e)Using the generator, slowly decrease voltage until HOT legend goes off on panel 400VU.	-Voltage read on millivoltmeter equals 11.41 mV approx. -On left ECAM display unit, the following message disappears : BRAKES TEMP HI DELAY T.O. -Temperature display for associated brake is 280°C (536°F) approx -On Captain and F/O main instrument panels 3VU and 5VU, MASTER CAUTION lights go off.
R **ON A/C ALL	
R Post SB 32-2058 For A/C 101-200,	
(e)Using the generator, slowly decrease	-Voltage read on millivoltmeter

ACTION	RESULT
voltage until HOT legend goes off on panel 400VU.	equals 11.41 mV approx. -On left ECAM display unit, the following message disappears : BRAKES TEMP HI DELAY T.O. BRK FAN.....ON -Temperature display for associated brake is 280°C (536°F) approx -On Captain and F/O main instrument panels 3VU and 5VU, MASTER CAUTION lights go off.

**ON A/C ALL

(f)Decrease generator voltage to zero

(e)Cancel WHEEL page by pressing CLR pushbutton switch located on ECAM control panel.
(f)Open, safety and tag circuit breakers 1GW and 17GW.
(g)In zone 731 or 741, place generator in OFF position. Disconnect generator and millivoltmeter. Connect brake temperature sensor connector.
(h)Close circuit breakers 1GW and 17GW.
(i)Repeat the same tests for the other sensors and check that results are similar.

E. Close-Up
(1)De-energize the aircraft electrical network (Ref. 24-41-00, P. Block 301).

Ref. MMEL Sect. 1-32, Item 25a (Brakes temperature)
CAUTION : THIS PROCEDURE IS TO BE USED ACCORDING TO THE REQUIREMENTS OF THE MMEL.

WARNING : CHECK THAT LANDING GEAR GROUND SAFETIES INCLUDING WHEEL CHOCKS ARE IN POSITION.

1. Brake Temperature Sensor Deactivation

A. Equipment and Materials

ITEM	DESIGNATION
A.	Safety Clips
B.	Warning Notice
C.	Temporary Placard
D.	Blanking Plugs
E.	Self Adhesive Tape 20 mm (0.8 in.) 30 mm (1.2 in.) wide
F.	Wheel Chocks
G.	Corrosion Resistant Steel Lockwire Dia. 0.8 mm (0.032 in.)

B. Procedure

(1)Job set-up

(a)Make certain that wheel chocks are in position.

(b)On panel 4VU :

- Make certain that landing gear Normal control lever is in DOWN position and prohibit its operation by displaying a warning notice.

(c)Between First Officer's and Third Occupant's seats :

- Make certain that landing gear Free Fall extension control handle is in normal position.

(d)Open, safety and tag the following circuit breakers :

	PANEL	SERVICE	IDENT.	LOCATION
R	133VU	HYDRAULIC/BRAKES/TEMP/DET/UNIT	1GW	335/R58
	133VU	HYDRAULIC/BRAKES/TEMP/WARN	17GW	331/V54

(2)Deactivation

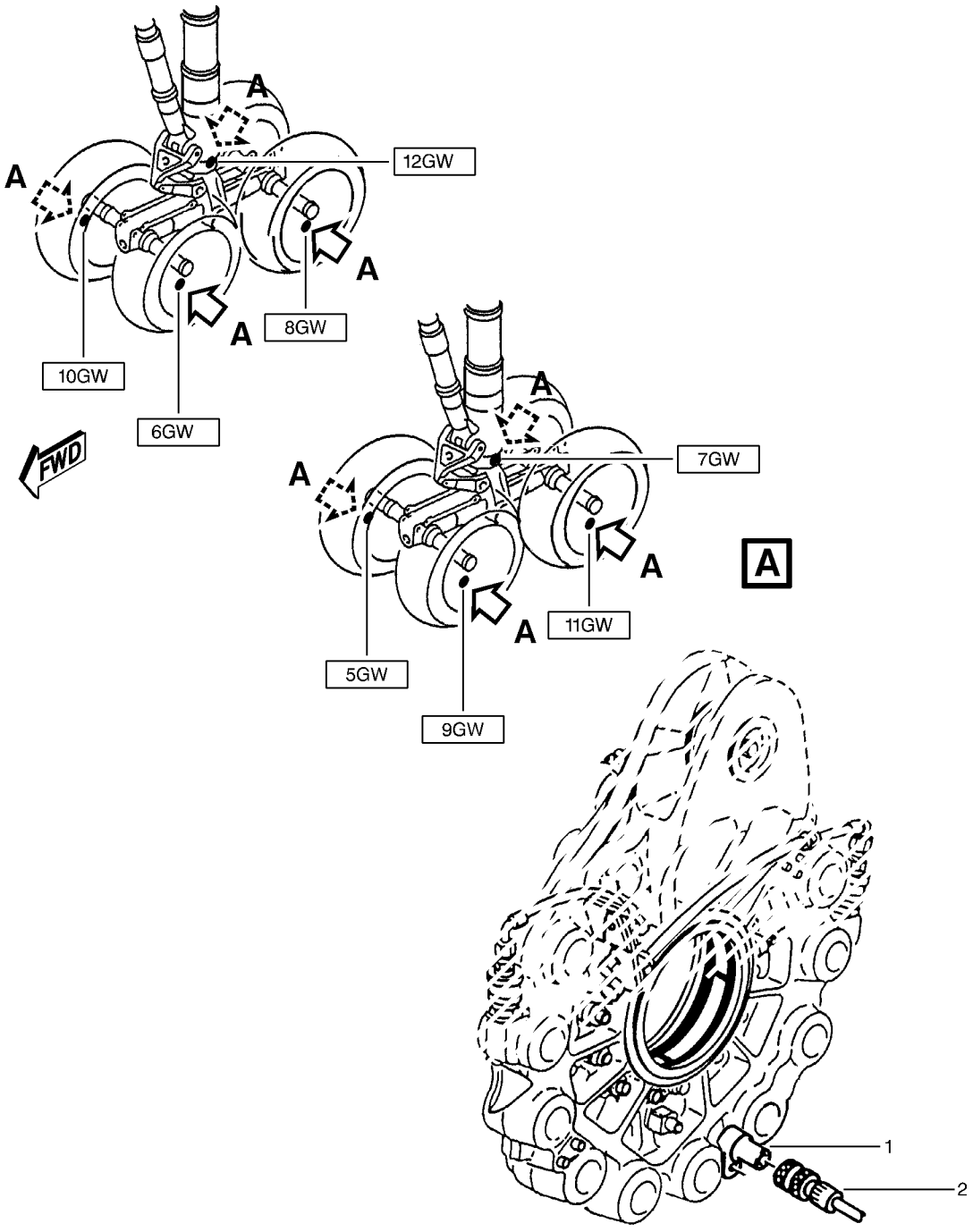
(Ref. Fig. 901)

(a)Disconnect electrical connector (2) from temperature sensor (1).

(b)Put blanking caps on the two connectors.

(c)Clean electrical connector (2) of the brake temperature sensor and apply two or three turns of self-adhesive tape, 20 mm (0.8 in.) 30 mm (1.2 in.) wide around electrical connector (2).

(d)Tightly wind 3 or 4 turns of lockwire, corrosion resistant steel dia. 0.8 mm (0.032 in.) around the tape on electrical connector (2). Twist the lockwire and put it through the nearest locking hole.



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Brake Temperature Sensor
Figure 901

NOTE : Make sure that the lockwire cannot rub when the landing gear operates.

(e)Put a temporary placard in the cockpit to warn the crew that the brake temperature system is inoperative on the corresponding wheel.

(3)Close-up

(a)Remove the warning notice.

(b)Close circuit breakers 1GW and 17GW.

(c)Make certain that working area is clean and clear of tools and miscellaneous items of equipment.

2. Brake Temperature Sensor Reactivation

A. Equipment and Materials

ITEM	DESIGNATION
A.	Safety Clips
B.	Warning Notice
C.	Temporary Placard
D.	Blanking Plugs
E.	Self Adhesive Tape 20 mm (0.8 in.) 30 mm (1.2 in.) wide
F.	Wheel Chocks
G.	Corrosion Resistant Steel Lockwire Dia. 0.8 mm (0.032 in.)
Referenced Procedure	
- TSM 32-47-00, P. Block 101	Brake Temperature

B. Procedure

(1)Job set-up

(a)Make certain that wheel chocks are in position.

(b)On panel 4VU :

- Make certain that landing gear Normal control lever is in DOWN position and prohibit its operation by displaying a warning notice.

(c)Between First Officer's and Third Occupant's seats :

- Make certain that landing gear Free Fall extension control handle is in normal position.

(d)Open, safety and tag the following circuit breakers :

	PANEL	SERVICE	IDENT.	LOCATION
R	133VU	HYDRAULIC/BRAKES/TEMP/DET/UNIT	1GW	335/R58
	133VU	HYDRAULIC/BRAKES/TEMP/WARN	17GW	331/V54

(2)Reactivation

(a)Remove and discard the lockwire around the tape on electrical connector (2).

(b)Remove the self-adhesive tape from electrical connector (2).

(c)Remove the blanking caps from the two connectors.

(d)Connect electrical connector (2) to temperature sensor (1).

(e)Close circuit breakers 1GW and 17GW.
(f)Do a trouble shooting on brake temperature system (Ref. TSM 32-47-00, P. Block 101).

(3)Close-up
(a)Remove the warning notice and the temporary placard.
(b)Make certain that working area is clean and clear of tools and miscellaneous items of equipment.

COMPENSATION UNIT - REMOVAL/INSTALLATION

WARNING : CHECK THAT LANDING GEAR GROUND SAFETIES INCLUDING WHEEL CHOCKS ARE IN POSITION.

1. Equipment and Materials

ITEM	DESIGNATION
A.	Lockwire
B.	Blanking Caps
C.	Circuit Breaker Safety Clips
D.	Warning Notices
E.	Wheel Chocks
F. Material No. 11-002	Cleaning Agents (Ref. 20-31-00)
Referenced Procedures - 32-47-00, P. Block 501	Brake System Temperature

1. Procedure

A. Job Set-Up
(1)Make certain that wheel chocks are in position.
(2)On panel 4VU :
- make certain that landing gear Normal control lever is in **DOWN** position and prohibit its operation by displaying a warning notice.

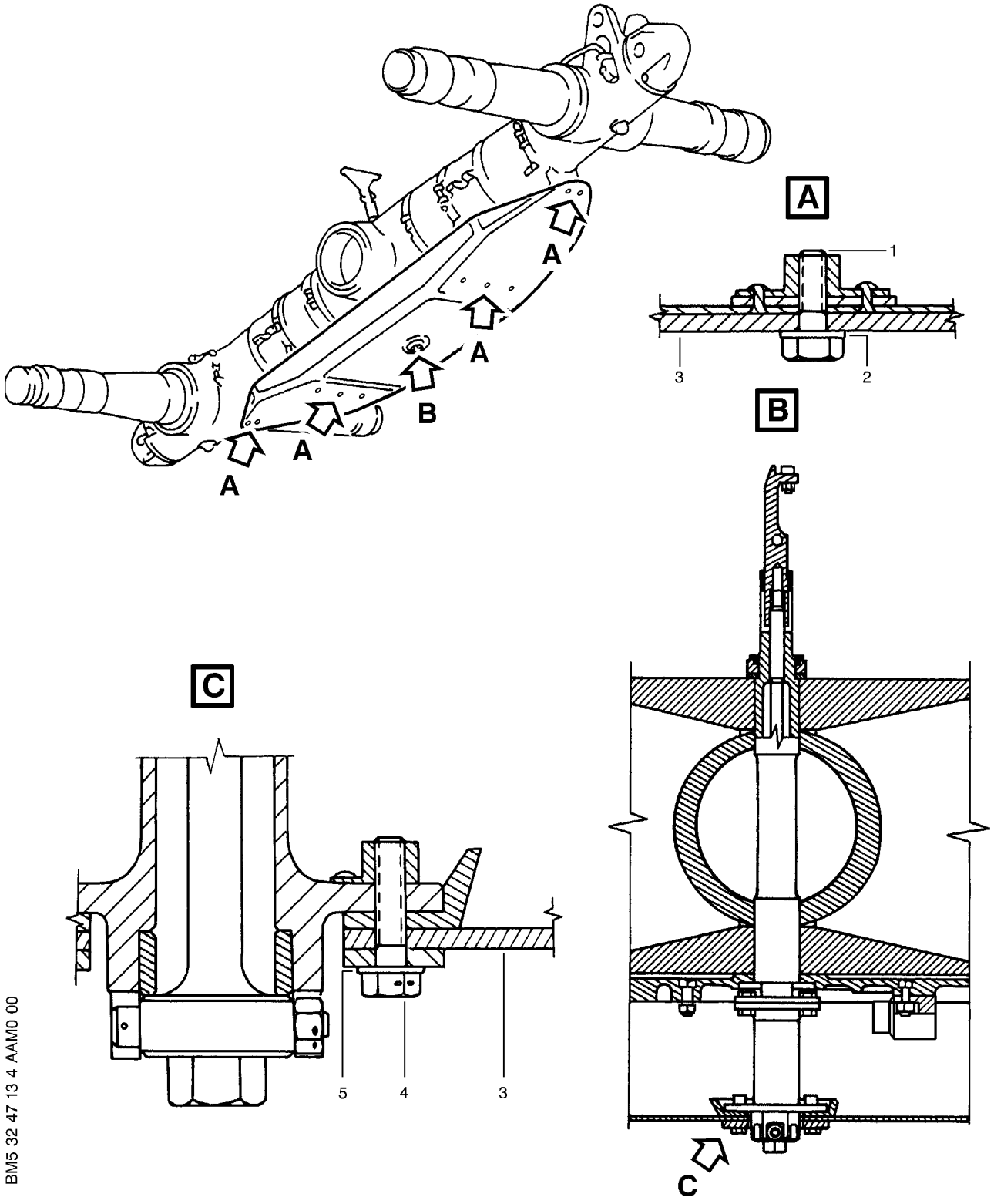
(3)Between First Officer's and Third Occupant's seats :
- make certain that landing gear Free Fall extension control handle is in Normal position and prohibit its operation by displaying a warning notice.

(4)On mechanical center pedestal 9VU :
- make certain that **PARKING BRAKE** control handle is in Normal (released) position and prohibit its operation by displaying a warning notice.

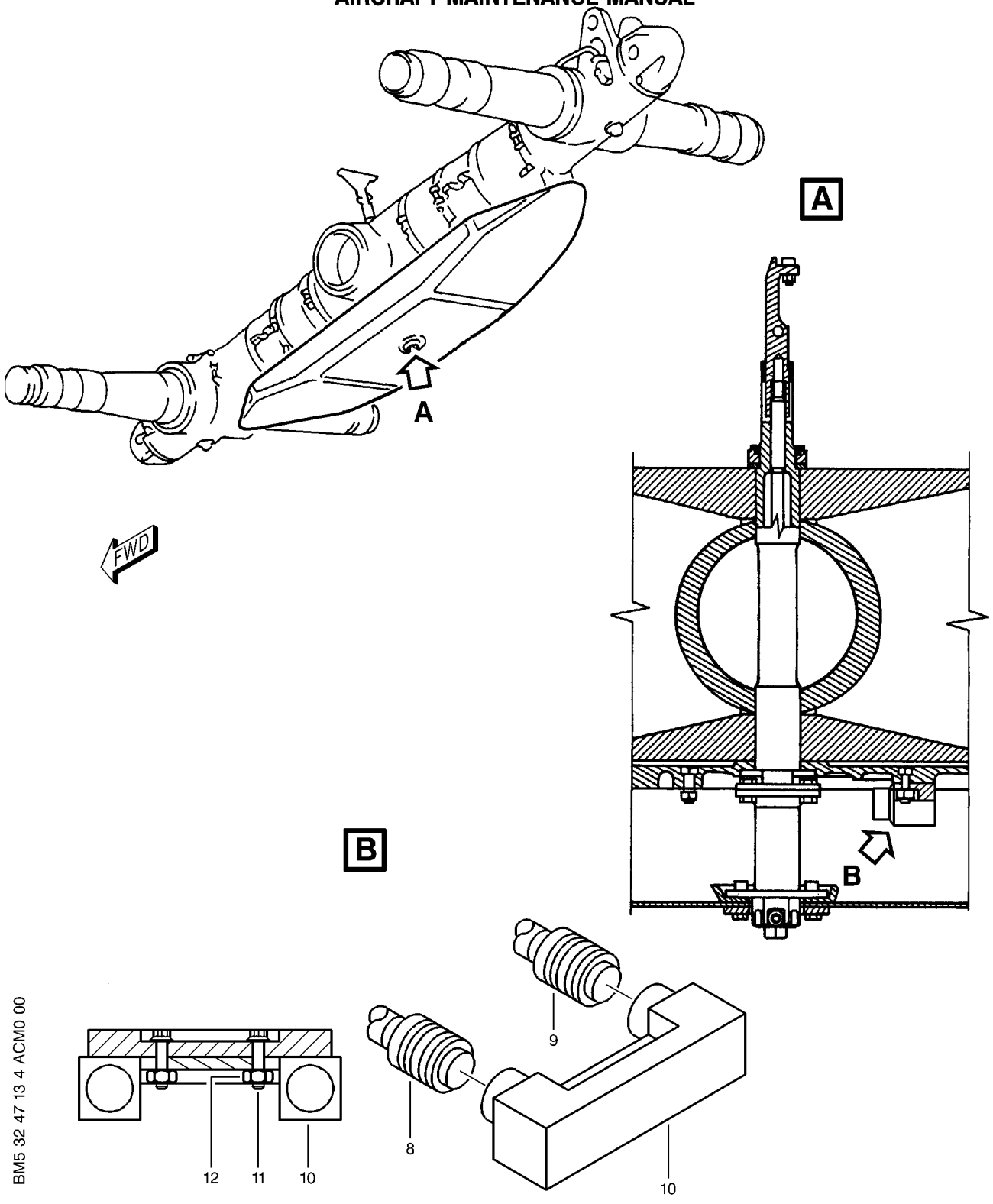
(5)Open, safety and tag the following circuit breakers :

	PANEL	SERVICE	IDENT.	LOCATION
R	133VU	HYDRAULIC/BRAKES/TEMP/DET/UNIT	1GW	335/R58
	133VU	HYDRAULIC/BRAKES/TEMP/WARN	17GW	331/V54

B. Removal
(Ref. Fig. 401)
(Ref. Fig. 402)
(1)Remove and retain the ten screws (1) and washers (2).
(2)Cut and remove lockwire, remove and retain the three screws (4) and washers (5).
(3)Remove casing (3).
(4)Disconnect electrical connectors (8) and (9) from compensation unit (10).
(5)Put blanking caps on disconnected electrical connectors.
(6)Remove the two screws (11) and nuts (12).



Bogie Beam Casing Attachment
Figure 401



Compensation Unit
Figure 402

(7)Remove compensation unit (10).

C. Preparation for Installation
(1)Examine structure of aircraft in area of compensation unit attachment for cracks, corrosion or other damage.
(2)Clean removed components with Material No. 11-002 and dry them with filtered compressed air.
(3)Check for impact damage to casing.
(4)Replace all damaged components.

D. Installation
(1)Position compensation unit (10).
(2)Install the two screws (11) and nuts (12).
(3)Tighten nuts (12).
(4)Remove blanking caps and connect electrical connectors (8) and (9) to the receptacles on compensation unit (10).
(5)Position casing (3) and install the three washers (5) and screws (4).
(6)Install the ten washers (2) and screws (1).
(7)Tighten screws (1).
(8)Tighten the three screws (4) and safety them with lockwire.

E. Test
(1)Remove safety clips and tags and close these circuit breakers :
- 1GW and 17GW.
(2)Carry out an operational test of brake temperature system (Ref. 32-47-00, P. Block 501).

F. Close-up
(1)Make certain that working area is clean and clear of tools and miscellaneous items of equipment.
(2)Remove warning notices.

BRAKE TEMPERATURE DETECTOR UNIT (16GW)

1. Equipment and Materials

ITEM	DESIGNATION
A.	Safety Clips
Referenced Procedure - 24-41-00, P. Block 301	AC External Power Control

2. Procedure

A. Job Set-Up

R

R (1)Open, safety and tag the following circuit breakers :

PANEL	SERVICE	IDENT.	LOCATION
133VU	HYDRAULIC/BRAKES/TEMP/DET/UNIT	1GW	335/R58
133VU	HYDRAULIC/BRAKES/TEMP/WARN	17GW	331/Y54

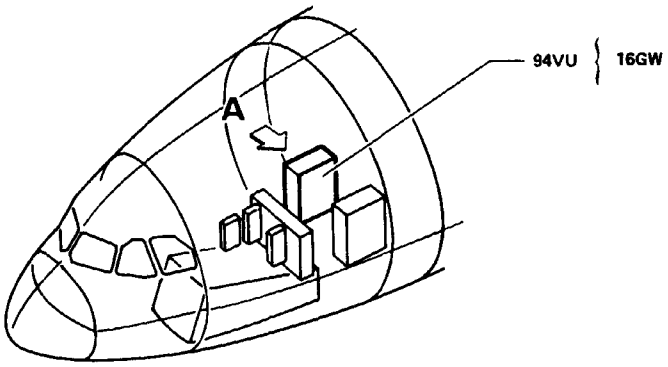
(Ref. Fig. 401)

B. Removal
(1)Loosen the knurled nuts (4) and remove fasteners from unit (3).
(2)Slowly remove unit (3) from its support (5).

C. Installation
(1)Install unit (3) on its support (5) and push unit onto guide pin (1) so that connector (2) is correctly connected.
(2)Install fasteners and tighten knurled nuts (4).
(3)Remove safety clips and close previously opened circuit breakers.

D. Tests
(1)Energize the aircraft electrical network (Ref. 24-41-00, P. Block 301). Make certain that electronics racks ventilation is correct.
(2)Perform functional test of hot brake detection and warning (ECAM display units) (Ref. 32-47-00, P. Block 501 paragraph 2.A:(3))

E. Close-Up
(1)De-energize the aircraft electrical network (Ref. 24-41-00, P. Block 301).



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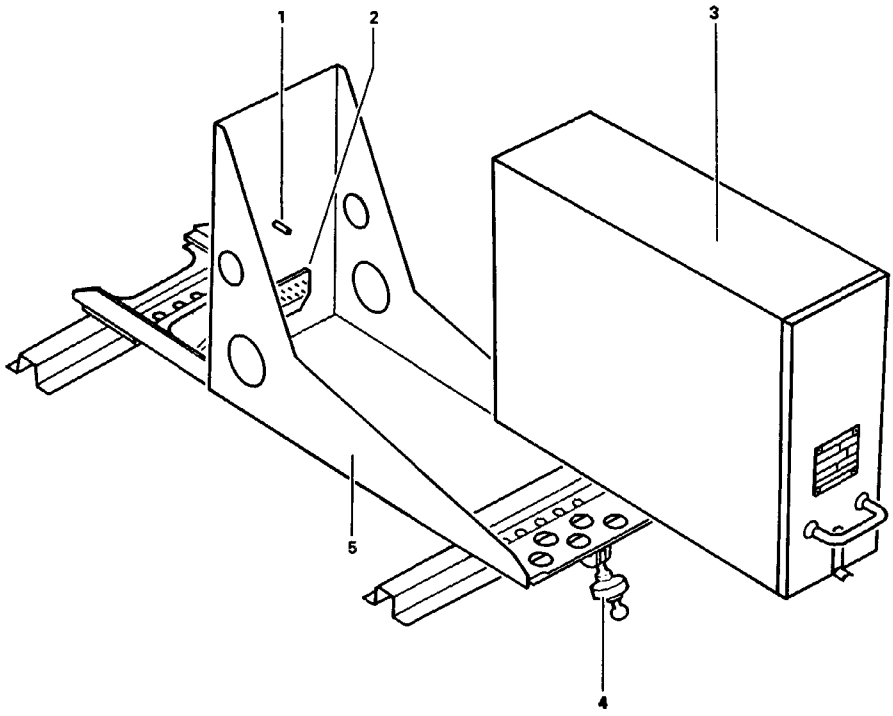


BM5 32 47 25 4 AAMO - 09

Brake Temperature Detector Unit
Figure 401

BRAKE COOLING - DESCRIPTION AND OPERATION

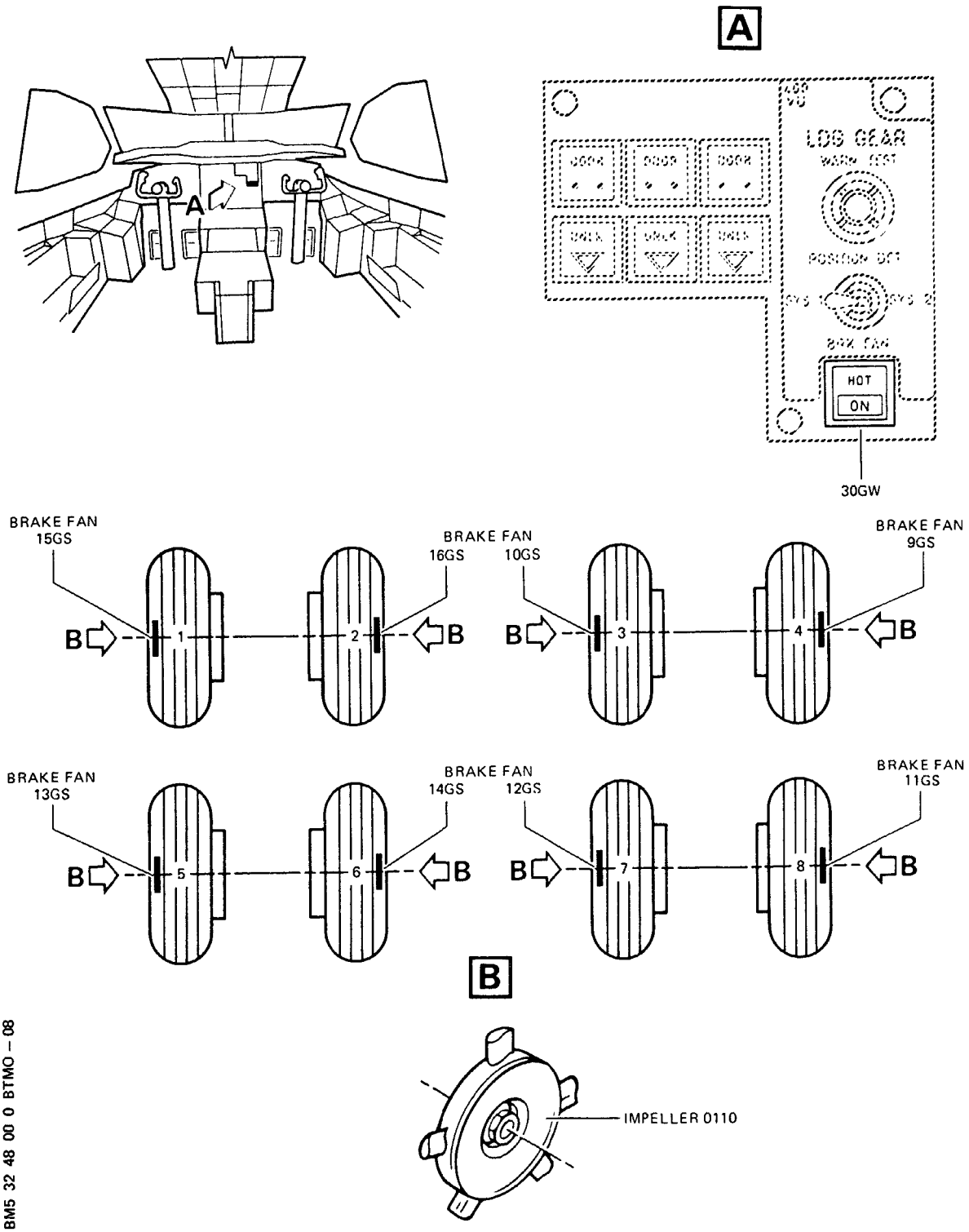
1. General

This equipment is optional.
The equipment enables high speed cooling of the brakes and therefore a reduction in the aircraft turn around time in the event of short flights with high energy braking.

R 2. Component Location

(Ref. Fig. 001)

FIN	FUNCTIONAL DESIGNATION	PANEL	ZONE	ACCESS DOOR	ATA REF.
0110	IMPELLER		731 741		32-48-11
9GS	FAN-BRAKE, WHEEL 4		741		32-48-11
10GS	FAN-BRAKE, WHEEL 3		741		32-48-11
11GS	FAN-BRAKE, WHEEL 8		741		32-48-11
12GS	FAN-BRAKE, WHEEL 7		741		32-48-11
13GS	FAN-BRAKE, WHEEL 5		731		32-48-11
14GS	FAN-BRAKE, WHEEL 6		731		32-48-11
15GS	FAN-BRAKE, WHEEL 1		731		32-48-11
16GS	FAN-BRAKE, WHEEL 2		731		32-48-11
30GW	P/BSW-BRK HOT IND 1 FAN CTL	400VU	211		



Brake Cooling - Component Location
Figure 001

R

3. Mechanical Installation

R **ON A/C 101-200,

R Post SB 32-2058 For A/C 101-200,

R Post SB 32-2131 For A/C 101-200,

(Ref. Fig. 002)

**ON A/C 001-100,

(Ref. Fig. 003)

**ON A/C ALL

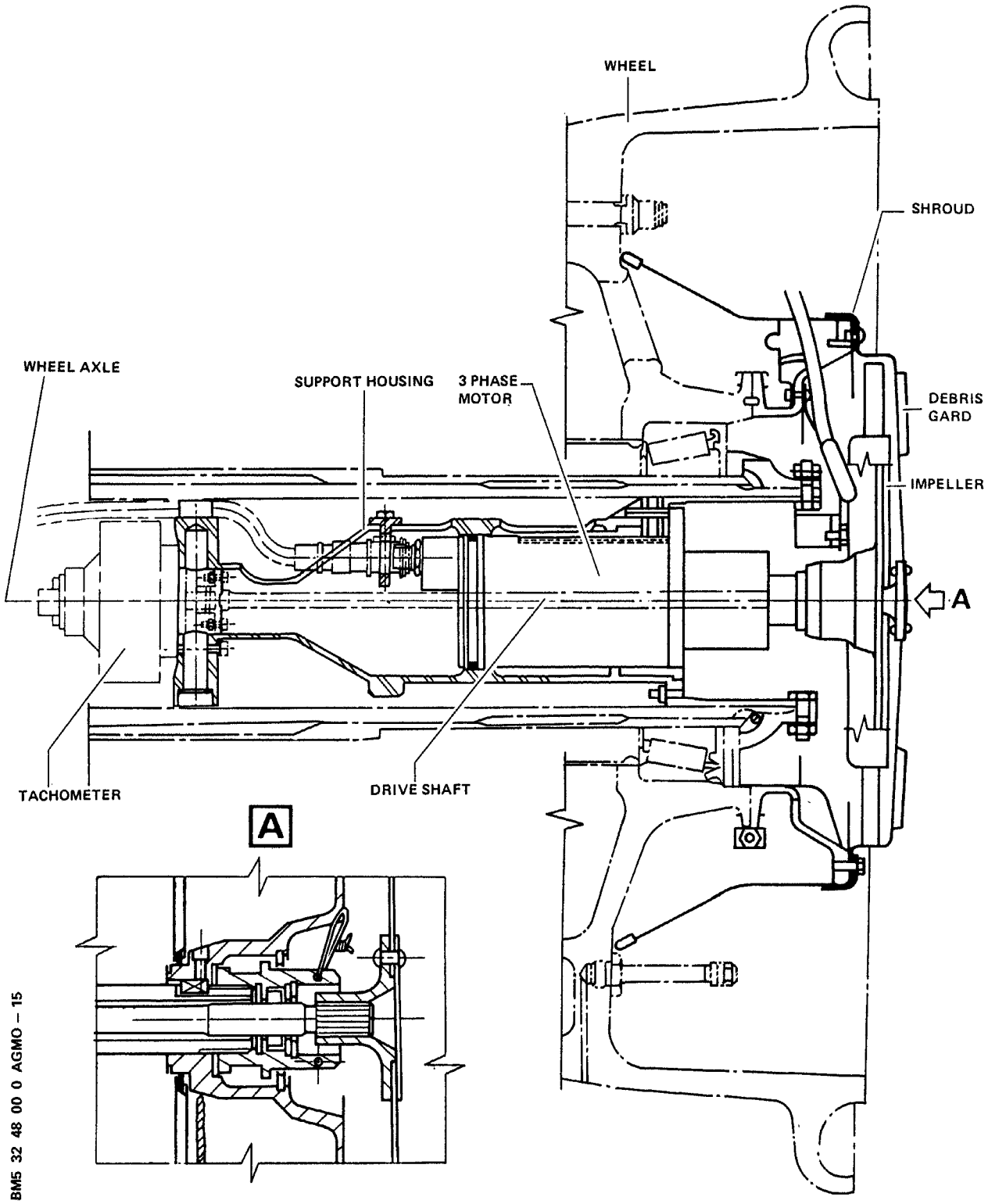
There is one fan per main gear wheel.
Each fan is comprised of :
- a motor
- an impeller
- a shroud comprising a debris guard
The fan motor is housed in the wheel axle, held in position by means of an adaptor assy. The motor drives the impeller which creates a flow of air from the heat pack to the exterior through the debris guard.
The tachometer drive shaft passes through the hollow fan motor shaft. The tachometer is driven by the shroud.
Responsibility for the fans lies with the brake manufacturer.
For both Messier and Bendix the fans are manufactured by Technofan.
Only the fan shroud differs.

4. Electrical Installation

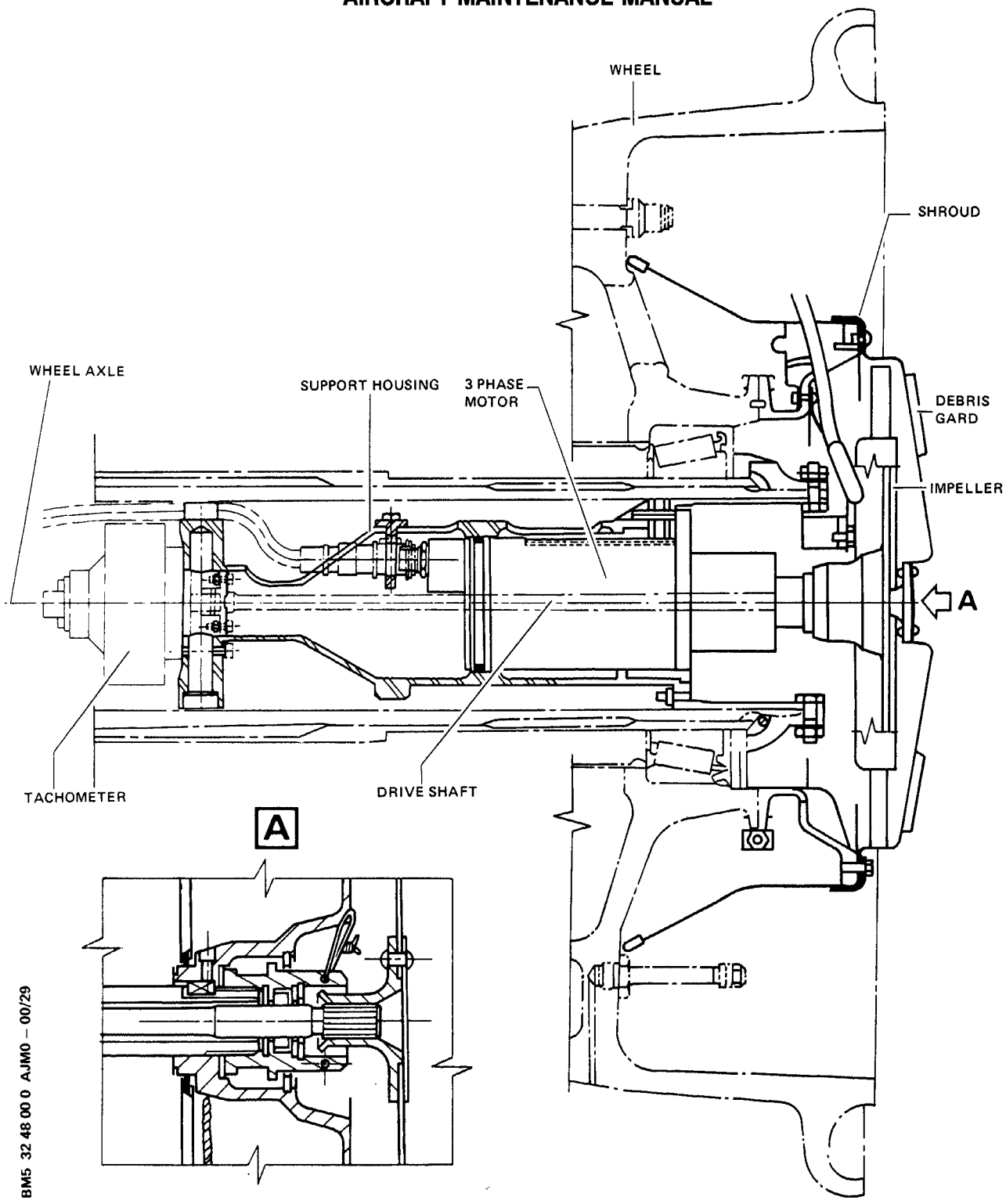
R **ON A/C 101-200,

R Post SB 32-2131 For A/C 101-200,

R There is one fan per main gear wheel.
R Each fan is comprised of :
R - a motor
R - an impeller
R - a shroud comprising a debris guard
R The fan motor is housed in the wheel axle, held in position by means of an
R adaptor assy. The motor drives the impeller which creates a flow of air
R from the heat pack to the exterior through the debris guard.
R The tachometer drive shaft passes through the hollow fan motor shaft. The
R tachometer is driven by the shroud.
R Responsibility for the fans lies with the brake manufacturer.
R for the fans lies with the brake manufacturer.



Brake Fan Installation (MESSIER)
Figure 002

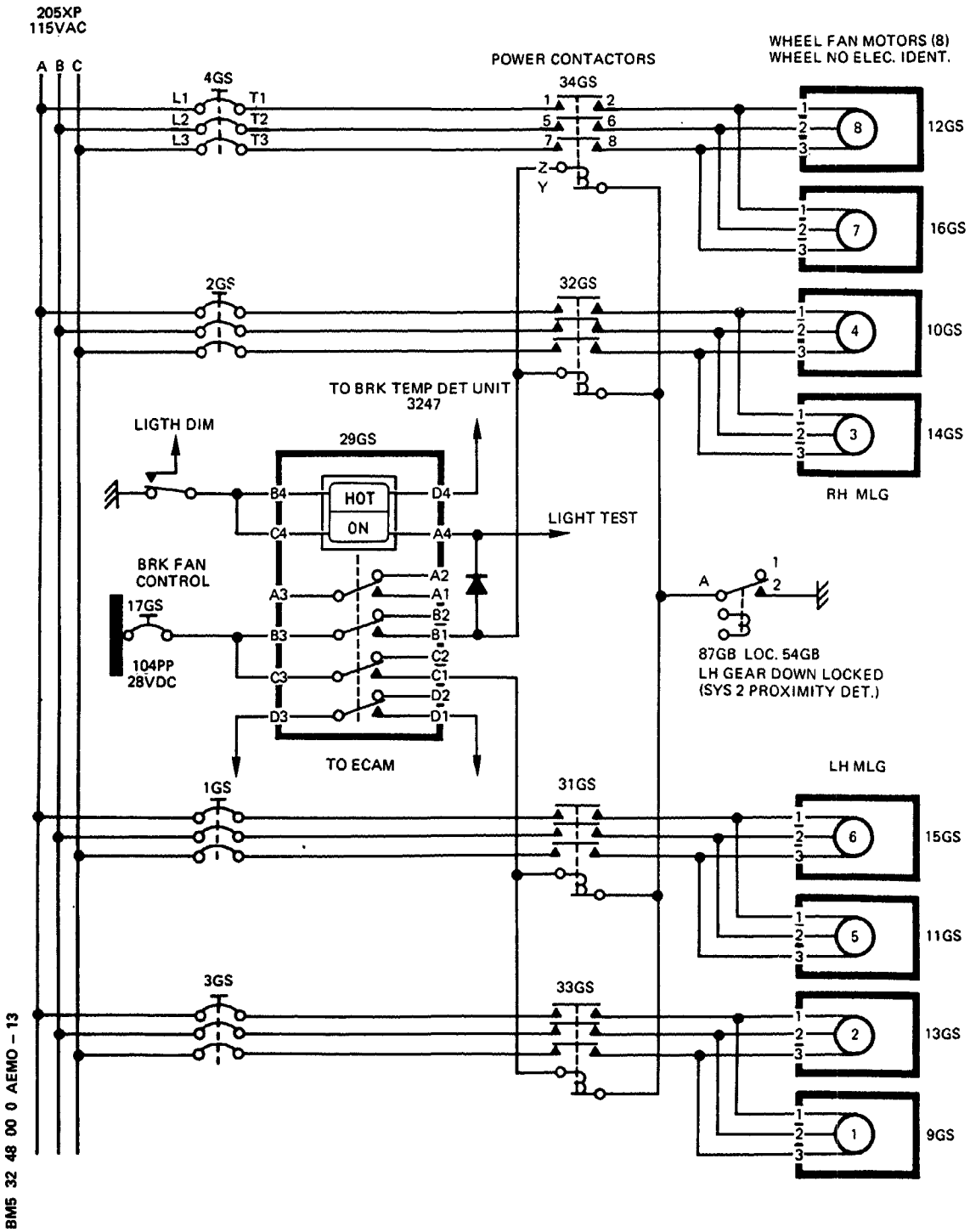


Brake Fan Installation (MESSIER)
Figure 003

R 4. Electrical Installation

R **ON A/C ALL

(Ref. Fig. 004)
The fan motor is of the three-phase type. The two motors in each twin-wheel axle have a common supply.
With the landing gear downlocked, the fans are started by pressing the illuminated pushbutton switch 30GW.
The fans must be started as soon as the pushbutton switch HOT legend comes on.
Illumination of the HOT legend indicates that at least one brake has exceeded the brake overheat threshold.
The control relays are located in relay box 107VU and the circuit breakers on panel 128VU.



Brake Cooling System - Wiring Diagram
Figure 004

R **ON A/C ALL

Post SB 32-2058 For A/C 101-200,

BRAKE COOLING - ADJUSTMENT/TEST

WARNING : MAKE CERTAIN THAT LANDING GEAR GROUND SAFETIES INCLUDING WHEEL CHOCKS ARE IN POSITION.
BEFORE POWER IS SUPPLIED TO THE AIRCRAFT MAKE CERTAIN THAT ELECTRICAL CIRCUITS UPON WHICH WORK IS IN PROGRESS ARE ISOLATED.

1. Operational Test

A. Reason for the Job
(1)Test of brake HOT indicating and fan control pushbutton switch.

B. Equipment and Materials

ITEM	DESIGNATION
(1)	Wheel Chocks
Referenced Procedure - 24-41-00, P. Block 301	AC External Power Control

C. Procedure
(1)Make certain that wheel chocks are in position.
(2)On panel 400VU (center instrument panel)
- make certain that brake HOT indicating and fan control pushbutton switch 30GW is in released position : ON legend off.

**ON A/C ALL

Post SB 32-2058 For A/C 101-200,

(3)Make certain that the following circuit breakers are closed :

PANEL	SERVICE	IDENT.	LOCATION
133VU	HYDRAULIC-BRAKES FAN/CTL	17GS	331/V53
133VU	HYDRAULIC-L/G PROX DET/RELAYS SYS 2 GEAR ON/OVHD PNL POS IND	83GB	331/V51

**ON A/C ALL

Post SB 32-2058 For A/C 101-200,

(4)Make certain that circuit breakers associated with circuits LT, LP, LS (ANN LT/TEST and ANN LT/DIM) are closed.

**ON A/C ALL

Post SB 32-2058 For A/C 101-200,

(5)Energize the aircraft electrical network (Ref. 24-41-00, P. Block 301).
(6)Make certain that electronics racks ventilation is correct.
(7)On panels 3VU and 5VU, cover the two photo-resistor cells 29LT and 30LT so as to simulate a variation in brightness.

D. Test
(1)Test of brake HOT indicating and fan control pushbutton switch.
(a)On panel 436VU, place ANN LT switch in TEST position
- on panel 400VU, HOT and ON legends on BRK FAN pushbutton switch come on.
NOTE : Other annunciator lights may come on.
(b)On panel 436VU, place ANN LT switch in BRT position.
- On panel 400VU, HOT and ON legends on BRK FAN pushbutton switch go off.
(c)On panel 400VU, press BRK FAN pushbutton switch
- ON legend on pushbutton switch comes on.
(d)On panel 436VU, place ANN LT switch in DIM, then in BRT position.
- On panel 400VU, ON legend on brake HOT indicating and fan control pushbutton switch dims then resumes normal brightness.
(e)Release BRK FAN pushbutton switches
- ON legend on pushbutton switch goes off.

E. Close-Up
(a)De-energize the aircraft electrical network (Ref. 24-41-00, P. Block 301).

2. Functional Test

A. Reason for the Job
(1)Full or partial test of fans.

B. Equipment and Materials

ITEM	DESIGNATION
(1)	Wheel Chocks
Referenced Procedure - 24-41-00, P. Block 301	AC External Power Control

C. Procedure
(1)Make certain that wheel chocks are in position.
(2)On panel 400VU
- Make certain that BRK FAN pushbutton switch 30 GW is released : ON legend off.

R **ON A/C ALL

R Post SB 32-2058 For A/C 101-200,

(3)Make certain that the following circuit breakers are closed :

PANEL	SERVICE	IDENT.	LOCATION
133VU	HYDRAULIC-BRAKES FAN CTL	17GS	331/V53
133VU	HYDRAULIC-LDG PROX DET/RELAYS/SYS 2 GEAR ON/OVHD PNL POS IND	83GB	331/V51

(4)Open the following circuit breakers then close the circuit breaker associated with the fans to be tested.

PANEL	SERVICE	IDENT.	LOCATION
133VU	HYDRAULIC-BRAKE FANS WHEEL 5 AND 6	1GS	334/S52
133VU	HYDRAULIC-BRAKE FANS WHEEL 3 AND 4	2GS	335/R55
133VU	HYDRAULIC-BRAKE FANS WHEEL 1 AND 2	3GS	335/R52
133VU	HYDRAULIC-BRAKE FANS WHEEL 7 AND 8	4GS	334/S55

(5)Energize the aircraft electrical network (Ref. 24-41-00, P. Block 301).
(6)Make certain that electronics racks ventilation is correct.

D. Test
(1)On panel 133VU, close circuit breaker 1GS.
(2)On panel 400VU, press BRK FAN pushbutton switch 30GW.
(a)ON legend comes on
(b)- On left landing gear rear wheels (5 and 6), fans are in operation
- On each wheel, check that direction of cooling air flow is correct

(from inner side to outer side of the wheel, the air being expelled through the debris guard).

(3)Release **BRK FAN** pushbutton switch.
- (a)- **ON** legend goes off
- (b)- On left landing gear rear wheels, (5 and 6) fans stop rotating.

(4)On panel **133VU**, open circuit breaker **1GS**.

(5)Repeat tests as per paragraphs 1., 2., 3. and 4. for each of the following circuit breakers and corresponding wheels.

CIRCUIT BREAKERS 133VU	WHEELS TO BE TESTED
2GS	RIGHT MLG FRONT WHEELS
3GS	LEFT MLG FRONT WHEELS
4GS	RIGHT MLG REAR WHEELS

(6)Close circuit breakers **1GS**, **2GS**, **3GS** and **4GS**.

(7)On panel **400VU**
- Press **BRK FAN** pushbutton switch. **ON** legend comes on.

(8)Check that fans are rotating on the eight main landing gear wheels.

(9)On panel **133VU**, open circuit breaker **17GS**.
- (a)- On panel **400VU**, **ON** legend on **BRK FAN** pushbutton switch goes off.
- (b)- On the eight main landing gear wheels, fans stop rotating.

(10)Close circuit breaker **17GS**.
- (a)On panel **400VU**, **ON** legend on **BRK FAN** pushbutton switch comes on.
- (b)On the eight main landing gear wheels, fans are rotating.

(11)On panel **133VU**, open circuit breaker **83GB**, to simulate gear not downlocked configuration (relay **87GB** de-energized).
- Check that, on the eight main landing gear wheels, fans stop rotating.

(12)Close circuit breaker **83GB**
- On the eight main landing gear wheels, fans are rotating.

(13)On panel **400VU**, release **BRK FAN** pushbutton switch.
- (a)**ON** legend goes off.
- (b)On the eight main landing gear wheels, fans stop rotating.

R **ON A/C ALL

R Post SB 32-2058 For A/C 101-200,

E. Close-Up

(1)De-energize the aircraft electrical network (Ref. 24-41-00, P. Block 301).

(2)Restore system and aircraft to normal operating condition.

3. System Test

Carry out the same tests as those specified for the functional test.

Ref. MMEL 32-48-01 (Brake Fan System) (FAA only)

CAUTION : THIS PROCEDURE IS TO BE USED ACCORDING TO THE REQUIREMENTS OF THE FAA MMEL.

1. Brake Fan Deactivation

A. Equipment and Materials

ITEM	DESIGNATION
A.	Warning Notices
B.	Circuit breaker(s) safety clip(s)

B. Procedure

(1)Make sure that this circuit breaker is closed :

PANEL	SERVICE	IDENT.	LOCATION
133VU	HYDRAULIC/BRAKES/FAN/CTL	17GS	331/V53

(2)Open, safety and tag circuit breakers associated with fan to be deactivated :

PANEL	SERVICE	IDENT.	LOCATION
133VU	HYDRAULIC/BRAKES FAN/WHEELS/5 & 6	1GS	334/S52
133VU	HYDRAULIC/BRAKES FAN/WHEELS/7 & 8	4GS	334/S55
133VU	HYDRAULIC/BRAKES FAN/WHEELS/1 & 2	3GS	335/R52
133VU	HYDRAULIC/BRAKES FAN/WHEELS/3 & 4	2GS	335/R55

(3)On panel 400VU :
- make certain that ON legend on BRK HOT indicating and fan control pushbutton switch 30GW is off.

NOTE : If the BRK HOT warning is shown, departure of the aircraft is not permitted until the warning goes off.

(4)In flight compartment, install a temporary placard to tell the crew that brake fans 1 & 2 (3 & 4, 5 & 6, 7 & 8) are deactivated.

2. Brake Fan Reactivation

A. Equipment and Materials

Referenced Procedure

- 32-48-00, P. Block 501	Brake Cooling

B. Procedure

(1)Remove safety clips and tags, and close circuit breakers 1GS, 2GS, 3GS, 4GS.

(2)Carry out a full functional test (Ref. 32-48-00, P. Block 501).
(3)Close-up
  (a)Remove the temporary placard.
  (b)Make certain that working area is clean and clear of tools and miscellaneous items of equipment.

R **ON A/C ALL

Post SB 32-2058 For A/C 101-200,

BRAKE FAN (9GS TO 16GS) - REMOVAL/INSTALLATION

WARNING : CHECK THAT LANDING GEAR GROUND SAFETIES INCLUDING WHEEL CHOCKS ARE IN POSITION.

**ON A/C ALL

Post SB 32-2058 For A/C 101-200,

1. Impeller

A. Equipment and Materials

ITEM	DESIGNATION
(1)MG174-04	Disassembly Tool
(2)	Wheel Chocks
(3)Material No. 04-003	Common Greases (Ref. 20-31-00)
(4)Material No. 04-004	Common Greases (Ref. 20-31-00)
(5)Material No. 04-022	Common Greases (Ref. 20-31-00)
(6)Material No. 11-002	Cleaning Agents (Ref. 20-31-00)
Referenced Procedures	
- 32-48-00, P. Block 501	Brake Cooling
- 32-48-11, P. Block 601	Brake Fan

B. Procedure

**ON A/C ALL

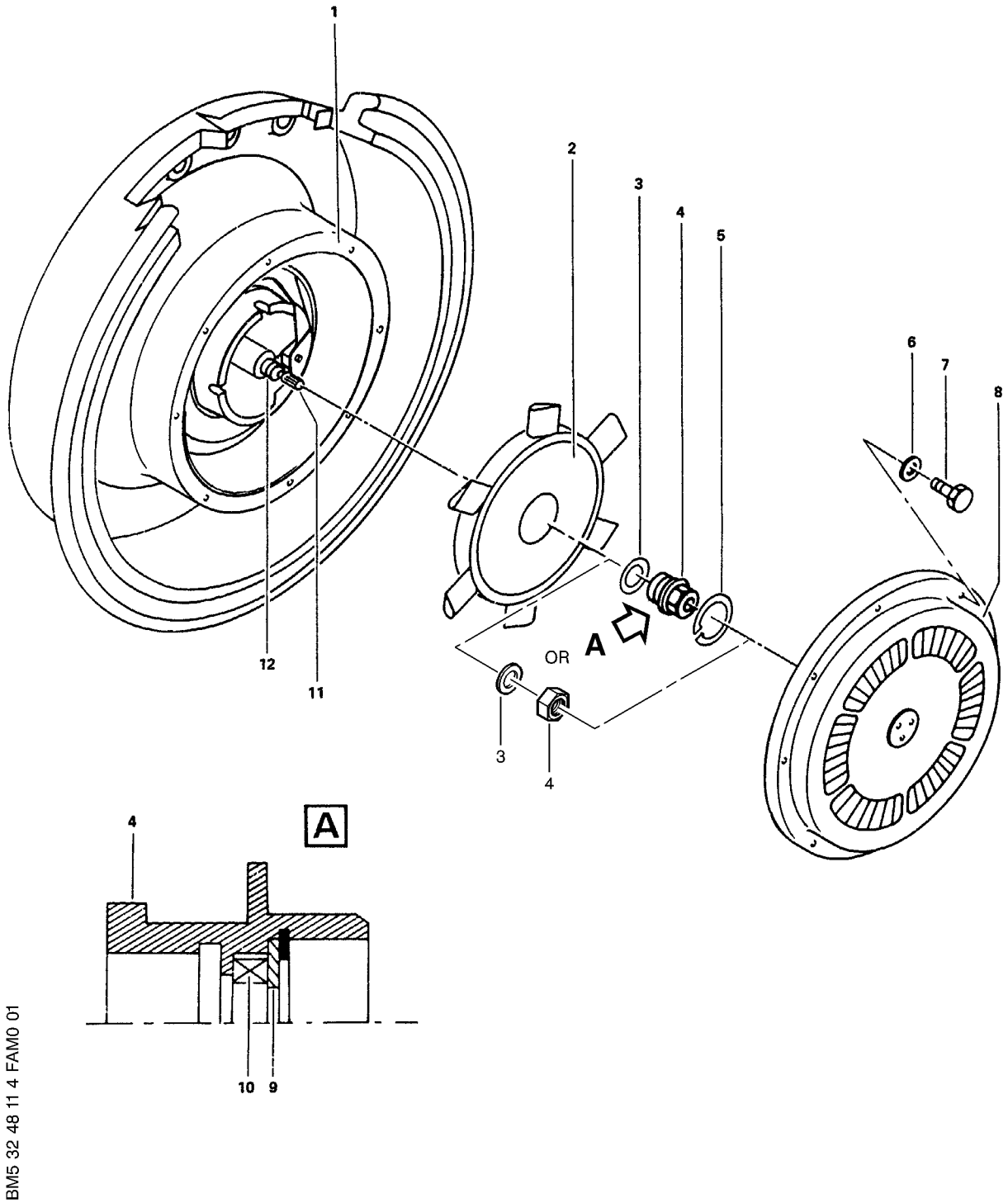
Post SB 32-2058 For A/C 101-200,

(Ref. Fig. 401)

**ON A/C ALL

Post SB 32-2058 For A/C 101-200,

(1)Job set-up
(a)Position set-up.
(b)On panel 400VU
- Make certain that ON legend on BRK HOT indicating and fan control



Impeller
Figure 401

pushbutton switch 30GW is off and prohibit its operation by displaying a warning notice.

(c)Open, safety and tag the following circuit breaker :

PANEL	SERVICE	IDENT.	LOCATION
133VU	HYDRAULIC/BRAKES/FAN/CTL	17GS	331/V53

(d)Open, safety and tag circuit breaker associated with fan to be removed :

PANEL	SERVICE	IDENT.	LOCATION
133VU	HYDRAULIC/BRAKE FANS/WHEEL/5 & 6	1GS	334/S52
133VU	HYDRAULIC/BRAKE FANS/WHEEL/7 & 8	4GS	334/S55
133VU	HYDRAULIC/BRAKE FANS/WHEEL/1 & 2	3GS	335/R52
133VU	HYDRAULIC/BRAKE FANS/WHEEL/3 & 4	2GS	335/R55

(e)Remove debris guard.

**ON A/C ALL

Post SB 32-2058 For A/C 101-200,

1 Cut and remove lockwire and remove screws (7), retain washers (6) for reinstallation.

**ON A/C ALL

Post SB 32-2058 For A/C 101-200,

CAUTION : DRAW DEBRIS GUARD (8) ALONG WHEEL AXLE CENTERLINE TO AVOID DAMAGING TACHOMETER DRIVE SHAFT.

(2)Removal

Pre SIL 32-095

(a)Clean nut (4) and circlip (5) area with Material No. 11-002 and dry with filtered air.

(b)Hold impeller (2) using disassembly tool MG174-04 and loosen nut (4).

(c)Turn impeller (2) counterclockwise, pull axially while unscrewing nut (4) and remove impeller assembly.

NOTE : A high load applied on nut (4) during fan extraction could damage threads. In this case, remove circlip (5), nut (4), retain washer (3) and extract fan.

Post SIL 32-095

(a)Clean nut (4) area with Material No. 11-002 and dry with filtered air.

(b)Hold impeller (2) using disassembly tool MG174-04 and remove nut (4) and washer (3).

(c)Remove impeller (2).

(3)Preparation of replacement component

Pre SIL 32-095

(a)If the NOTE is not applied:

1 Remove nut (4) from removed impeller as follows :

- remove circlip (5) and nut (4)
- retain washer (3).

NOTE : Nut (4) is equipped with washer (9) and seal (10).

(b)Depreserve replacement impeller and make certain that it is in correct condition.

(c)Install washer (3).

(d)Install nut (4) equipped with washer (9) and seal (10) on replacement impeller and secure with circlip (5).

Post SIL 32-095

(a)Depreserve replacement impeller and make certain that it is in correct condition.

(b)Install nut (4) and washer (3) on replacement impeller.

(4)Installation

NOTE : Do not mix Material No. 04-004 with Material No. 04-022. You can use Material No. 04-022 as an alternative to Material No. 04-004. Clean and degrease the parts before you use Material No. 04-022.

(a)Apply grease Material No. 04-004 or Material No. 04-022 to fan motor drive shaft. Apply a light coat of grease Material No. 04-003 to bottom of nut (4) thread.

(b)Position impeller (2) and engage on fan motor drive shaft splines while screwing down nut (4) equipped with washer (9) and seal (10).

(c)TORQUE nut (4) to 3.4 m.daN (25 lbf. ft.).

NOTE : Check that impeller (2) and drive shaft rotate freely.

(d)Clean debris guard drive shaft (11) splines and apply a light coat of grease Material No. 04-003 only.

(e)Correctly position debris guard (8).

NOTE : Debris guard (8) shall bear against shroud (1) over its full circumference.

(f)Position debris guard (8) carefully engaging tachometer drive shaft to secure shroud (1).

(g)Apply a light coat of grease Material No. 04-004 or Material No. 04-022 to screws (7) and secure debris guard (8) to shroud (1) with screws (7) and washers (6).

TORQUE screws (7) to 0.25 m.daN (22.12 lbf. in.).

(h)Make certain that fan operates correctly (Ref. 32-48-11, P. Block 601).

(j)Remove safety clips and tags and close circuit breakers 17GS and 1GV.

(k)Remove safety clip and tag and close circuit breaker 1GS, 2GS, 3GS or 4GS corresponding to removed impeller.

(5)Test

Carry out a functional test (Ref. 32-48-00, P. Block 501).

(6)Close-up

(a)Remove warning notice.

(b)Make certain that working area is clean and clear of tools and miscellaneous items of equipment.

**ON A/C ALL

Post SB 32-2058 For A/C 101-200,

2. Fan Motor

A. Equipment and Materials

ITEM	DESIGNATION
(1)MG174-04	Disassembly Tool
(2)	Extractor
(3)MG174-500-02	Motor Extraction Tool
R or	
R 4610030500	Motor Extraction Tool
(4)	Wheel Chocks
(5)	Corrosion Resistant Steel Lockwire 0.8 in. Dia (0.032 in.)
(6)	Circuit Breaker Safety Clips
(7)	Warning Notice
(8)Material No. 04-003	Common Greases (Ref. 20-31-00)
(9)Material No. 04-004	Common Greases (Ref. 20-31-00)
10)Material No. 04-022	Common Greases (Ref. 20-31-00)
11)Material No. 11-002	Cleaning Agents (Ref. 20-31-00)
Referenced Procedures	
- 07-12-00, P. Block 1	Jacking for Wheel Change
- 32-48-00, P. Block 501	Brake Cooling
- 32-48-11, P. Block 601	Brake Fan

B. Procedure

**ON A/C ALL

Post SB 32-2058 For A/C 101-200,

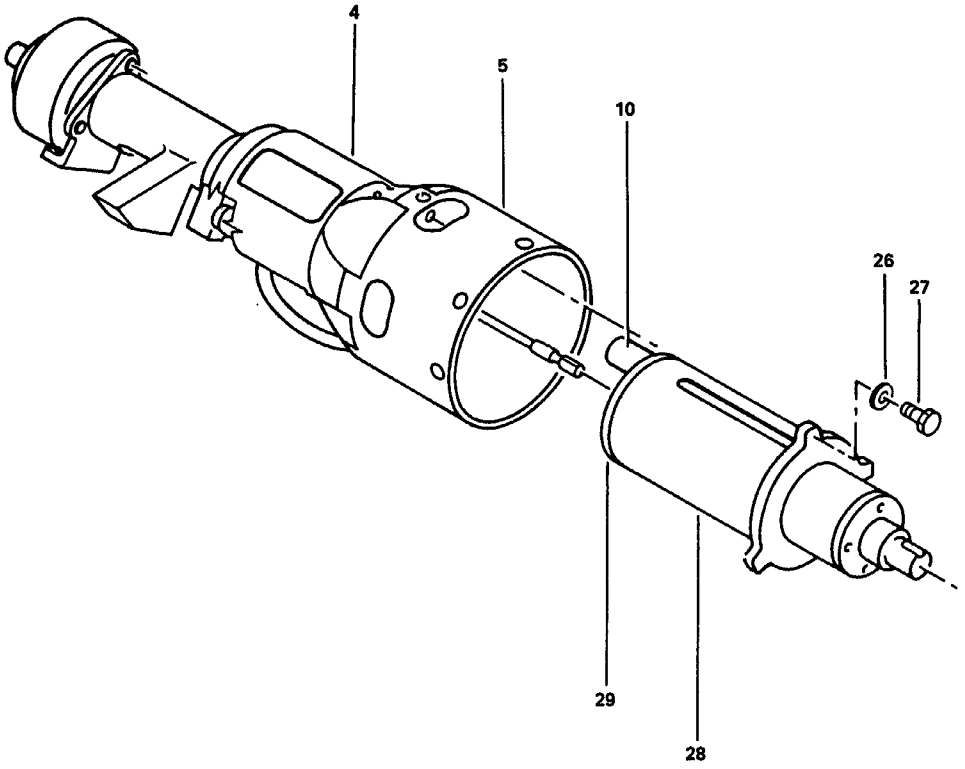
(Ref. Fig. 402)

**ON A/C ALL

Post SB 32-2058 For A/C 101-200,

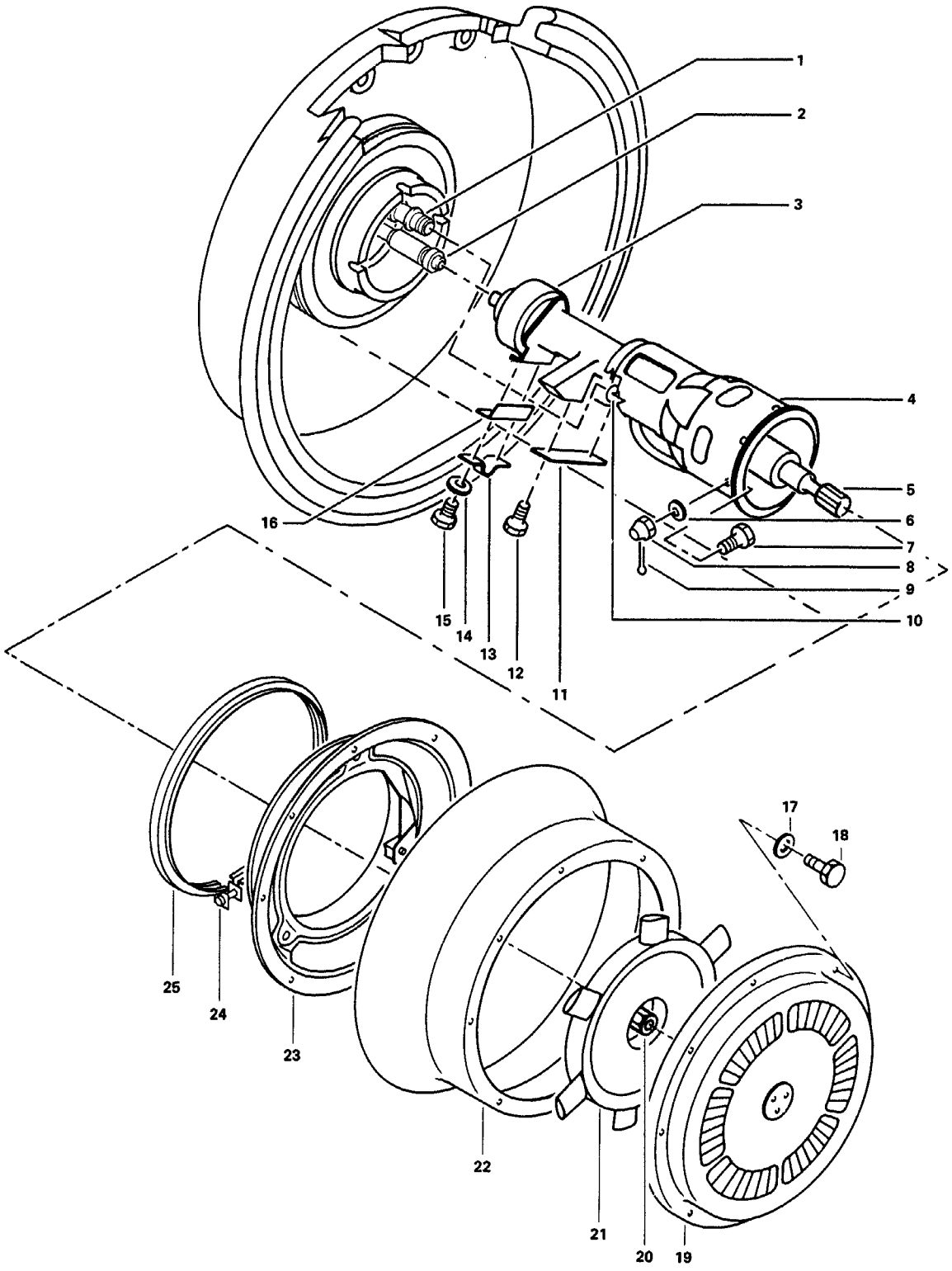
(Ref. Fig. 403)

**ON A/C ALL



BM5 32 48 11 4 FBMO – 17

Transmission Unit and Fan Motor Housing
Figure 402



Brake Fan Motor
Figure 403

Post SB 32-2058 For A/C 101-200,

(1)Job set-up
(a)Position wheel chocks.
(b)On panel 400VU
- Make certain that ON legend on BRK HOT indicating and fan control pushbutton switch 30GW is off and prohibit its operation by displaying a warning notice.
(c)Open, safety and tag the following circuit breaker :

PANEL	SERVICE	IDENT.	LOCATION
133VU	HYDRAULIC/BRAKES/FAN/CTL	17GS	331/V53

(d)Make certain that circuit breaker associated with fan motor to be removed is open, safetied and tagged :

PANEL	SERVICE	IDENT.	LOCATION
133VU	HYDRAULIC/BRAKE FANS/WHEEL/5 & 6	1GS	334/S52
133VU	HYDRAULIC/BRAKE FANS/WHEEL/3 & 4	2GS	335/R55
133VU	HYDRAULIC/BRAKE FANS/WHEEL/1 & 2	3GS	335/R52
133VU	HYDRAULIC/BRAKE FANS/WHEEL/7 & 8	4GS	334/S55

**ON A/C ALL

Post SB 32-2058 For A/C 101-200,

(2)Removal
(a)Cut and remove lockwire and remove screws (18) and washers (17). Retain washers (17) for reinstallation.
(b)Remove debris guard (19) from tachometer.
CAUTION : DRAW DEBRIS GUARD ALONG WHEEL AXLE CENTERLINE TO AVOID DAMAGING TACHOMETER DRIVE SHAFT.
(c)Clean nut (20) area with Material No. 11-002 and dry with filtered compressed air.
(d)Turn fan (21) counterclockwise and pull axially while unscrewing central nut (20). Using disassembly tool MG174-04, remove fan equipped with nut (refer to NOTE in paragraph 1.B.(2)).
(e)Remove shroud (22).

**ON A/C ALL

Post SB 32-2058 For A/C 101-200,

(f)Loosen nut (24) to remove clamp (25). Remove casing (23) and retain clamp (25).

(g)Using extractor, remove mounting assembly (4) from axle.
CAUTION : TAKE CARE NOT TO DAMAGE CABLE DURING EXTRACTION OF MOUNTING (4).
CAUTION : DO NOT USE TACHOMETER ROTATING PARTS FOR EXTRACTION.
(h)Disconnect connector (10) from fan connector (1).
1 Cut and remove lockwire and remove the two screws (12) and retain connector (1) positioning plate (11).
2 Cut and remove lockwire and remove the two screws (15), washers (14), clamp (13) and retaining plate (16).
3 Disconnect connector (1).
(j)Disconnect connector (2) from tachometer (3).
(k)Remove mounting assembly (4)
(l)Remove fan motor (28).
1 Cut and remove lockwire and remove screws (27), retain washers (26). Remove fan motor (28) by pulling it free from support (4)
R with extraction tool MG174-500-02 or 4610030500.

(3)Preparation of replacement component
(a)Depreserve replacement fan motor (28) and check for correct condition.
(b)Make certain that external O-ring (29) is correctly installed.

(4)Installation
NOTE : Do not mix Material No. 04-004 with Material No. 04-022. You can use Material No. 04-022 as an alternative to Material No. 04-004. Clean and degrease the parts before you use Material No. 04-022.
(a)Line up and slide fan motor (28) into mounting (4).
(b)Secure fan motor (28) in mounting (4) with washers (26) and screws (27). TORQUE screws (27) to 0.5 m.daN (44.24 lbf. in.) and wirelock.
(c)Apply a light coat of grease Material No. 04-004 or Material No. 04-022 to mounting (4) internal surface.
(d)Position mounting in wheel axle.
(e)Connect tachometer (3) connector (2).
(f)Connect fan connector (1).
1 Connect connector (1) to fan motor connector (10) and install positioning plate (16).
2 Install retaining plate (11) maintaining connector in correct position. Safety plate with screws (12). Wirelock screws (12).
3 Insert connector (1) cable in clamp (13). Install clamp (16), washers (14) and screws (15).
Tighten screws (15) and wirelock.
(g)Grease inner surface of axle with Material No. 04-004 or Material No. 04-022 over a length of approximately 100 mm (3.94 in.).
(h)Install mounting assembly (4) in its housing taking care to position cables correctly.
NOTE : Slide mounting (4) into axle without forcing.
(j)Align axle holes with holes in mounting (4). Secure mounting (4) to axle with bolts (7), washers (6) and nuts (8).
CAUTION : BOLT HEADS SHALL BE INSTALLED INSIDE AXLE.
COTTER PIN (9) SHALL BE INSTALLED PERPENDICULAR TO AXLE.
(k)Tighten nuts (8) and install cotter pins.
NOTE : Make certain that the rotating part of the transmission unit rotates freely.
(l)Install casing (23) by correctly positioning drive key. Secure casing

(23) to wheel using clamp (25). Tighten clamp (25) with nut (24) TORQUE nut to between 0.28 and 0.34 m.daN (25 and 30 lbf.in.).
NOTE : Casing (23) shall bear against wheel over its full circumference.

(m)Grease fan drive shaft with Material No. 04-004 or Material No. 04-022. Apply a light coat of grease Material No. 04-003 to bottom of nut (20) thread.

(n)Install fan (21) on fan drive shaft splines and nut (20). TORQUE nut (20) to 3.4 m.daN (25 lbf. ft.).
NOTE : Check that fan and drive shaft rotate freely.

**ON A/C ALL

Post SB 32-2058 For A/C 101-200,

(p)Install debris guard (19)
1 Grease tachometer drive shaft splines and debris guard adaptor splines with Material No. 04-003 only.
2 Debris guard (19) shall bear against shroud (22).
3 Secure debris guard (19) to casing (23) by immobilizing shroud (22) (check that it is correctly positioned with respect to wheel).
4 Make certain that tachometer drive shaft splines are correctly engaged.
5 Apply a light coat of grease Material No. 04-004 or Material No. 04-022 to screws (18) and secure debris guard (19) with washers (17) and screws (18).
TORQUE screws (18) to 0.25 m.daN (22.12 lbf. in.).

**ON A/C ALL

Post SB 32-2058 For A/C 101-200,

(q)Make certain that fan operates correctly (Ref. 32-48-11, P. Block 601).
(r)Remove wheel chocks from wheels of main landing gear concerned.
(s)Jack up axle concerned (07-12-00, P. Block 1).
(t)Manually rotate wheel at least one turn and check that there is no hard point.
(u)Lower the aircraft onto its wheels (07-12-00, P. Block 1) and position wheel chocks.
(v)Remove safety clips and tags and close circuit breakers 17GS and 1GV.
(w)Remove safety clip and tag and close circuit breaker 1GS, 2GS, 3GS or 4GS associated with removed fan motor.

(5)Tests
(a)Perform a fan functional test (Ref. 32-48-00, P. Block 501).

(6)Close-up
(a)Remove warning notice.
(b)Make certain that working area is clean and clear of tools and

miscellaneous items of equipment.

R **ON A/C 101-200,

Post SB 32-2131 For A/C 101-200,

BRAKE FAN (9GS TO 16GS) - REMOVAL/INSTALLATION

**ON A/C 101-200,

Post SB 32-2131 For A/C 101-200,

WARNING : CHECK THAT LANDING GEAR GROUND SAFETIES INCLUDING WHEEL CHOCKS ARE IN POSITION.

1. Impeller

A. Equipment and Materials

ITEM	DESIGNATION
(1)MG174-04	Disassembly Tool
(2)	Extractor
(3)Material No. 04-003	Common Greases (Ref. 20-31-00)
(4)Material No. 04-004	Common Greases (Ref. 20-31-00)
(5)Material No. 04-022	Common Greases (Ref. 20-31-00)
(6)Material No. 04-020	Common Greases (Ref. 20-31-00)
(7)Material No. 11-002	Cleaning Agents (Ref. 20-31-00)
Referenced Procedures	
- 32-48-00, P. Block 501	Brake Cooling
- 32-48-11, P. Block 601	Brake Fan

B. Procedure

**ON A/C 101-200,

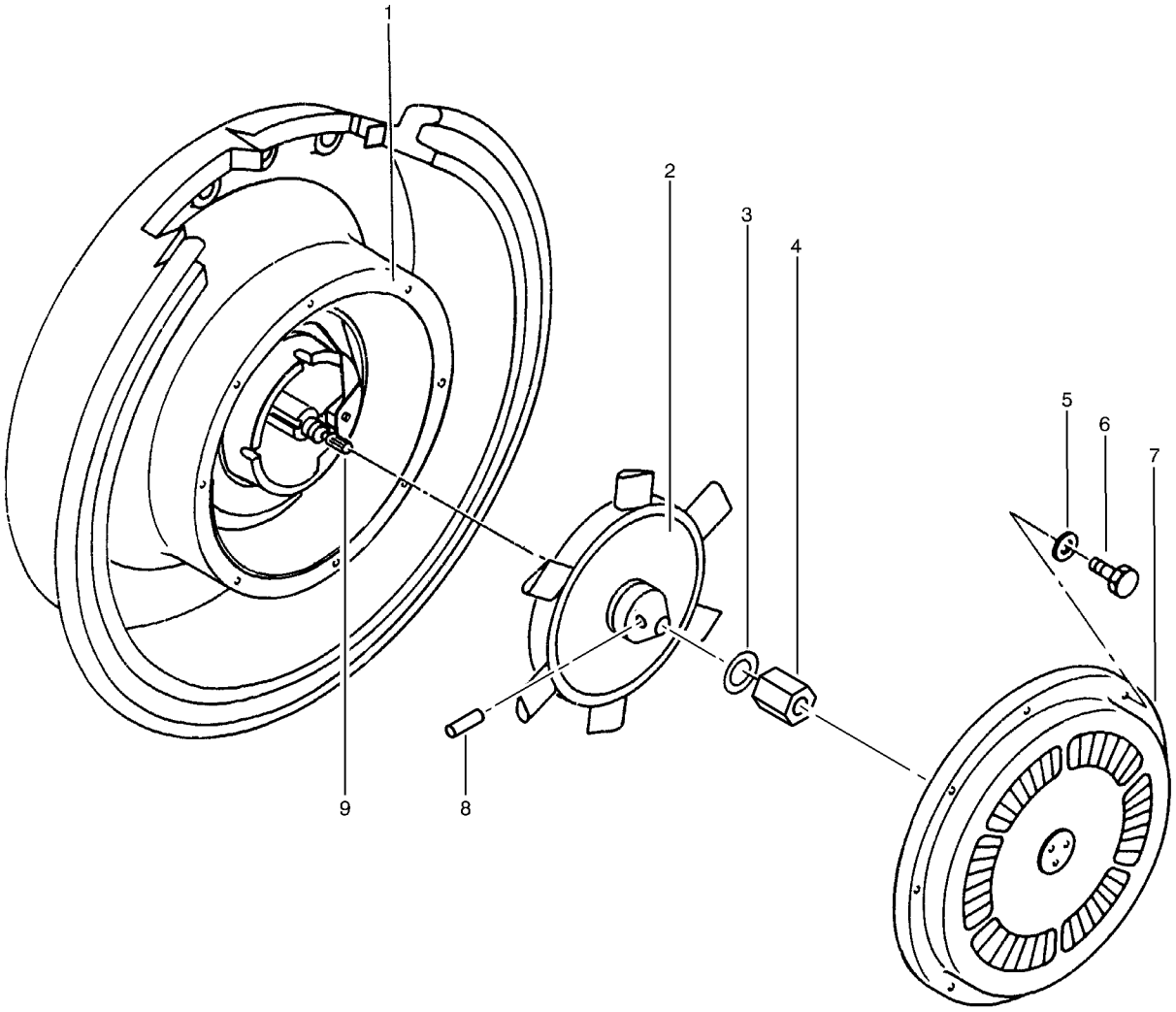
Post SB 32-2131 For A/C 101-200,

(Ref. Fig. 401)

**ON A/C 101-200,

Post SB 32-2131 For A/C 101-200,

(1)Job set-up
(a)Position wheel chocks.
(b)On panel 400VU



BM5 32 48 11 4 FAB0 01

Impeller
Figure 401

R

- make certain that ON legend on BRK HOT indicating and fan control pushbutton switch 30GW is off and prohibit its operation by displaying a warning notice.

(c)Open, safety and tag the following circuit breakers :

PANEL	SERVICE	IDENT.	LOCATION
133VU	HYDRAULIC/BRAKES/FAN/CTL	17GS	331/V53

(d)Open, safety and tag circuit breaker associated with fan to be removed :

PANEL	SERVICE	IDENT.	LOCATION
133VU	HYDRAULIC/BRAKE FANS/WHEEL/5 & 6	1GS	334/S52
133VU	HYDRAULIC/BRAKE FANS/WHEEL/3 & 4	2GS	335/R55
133VU	HYDRAULIC/BRAKE FANS/WHEEL/1 & 2	3GS	335/R52
133VU	HYDRAULIC/BRAKE FANS/WHEEL/7 & 8	4GS	334/S55

**ON A/C 101-200,

Post SB 32-2131 For A/C 101-200,

(e)Remove debris guard.

R 1 Remove screws (6) and tab washers (5).

CAUTION : DRAW DEBRIS GUARD (7) ALONG WHEEL AXLE CENTERLINE TO AVOID DAMAGING TACHOMETER DRIVE SHAFT.

(2)Removal

(a)Clean nut (4) area with Cleaning Agent (Material No. 11-002) and dry with filtered compressed air.

(b)Hold impeller (2) using disassembly tool MG174-04 and loosen nut (4).

(c)Turn impeller (2) counterclockwise, pull axially while unscrewing nut (4).

(d)Remove washer (3).

(e)Loosen setscrew (8).

(f)Remove impeller (2) from drive shaft (9).

(3)Preparation of replacement component

(a)Depreserve replacement impeller and make certain that it is in correct condition.

(4)Installation

NOTE : Do not mix Material No. 04-004 with Material No. 04-022. You can use Material No. 04-022 as an alternative to Material No. 04-004. Clean and degrease the parts before you use Material No. 04-022.

(a)Apply Grease (Material No. 04-004) or (Material No. 04-022) to drive shaft (9). Apply a light coat of Grease (Material No. 04-003) to bottom of nut (4) thread.

(b)Position impeller (2), washer (3) and nut (4).

(c)Tighten setscrew (8).

(d)TORQUE nut (4) to between 3.1 and 3.4 m.daN (23 and 25 lbf.ft.).

NOTE : Check that impeller (2) and drive shaft rotate freely.

(e)Clean debris guard drive shaft (9) splines and apply a light coat of Grease (Material No. 04-020) only.

(f)Correctly position debris guard (7).

NOTE : Debris guard (7) shall bear against shroud (1) over its full circumference.

(g)Position debris guard (7) carefully engaging tachometer drive shaft to secure shroud (1).

(h)Apply a light coat of Grease (Material No. 04-004) or (Material No. 04-022) to screws (6) and secure debris guard (7) to shroud (1)

R with screws (6) and tab washers (5).

R TORQUE screws (6) to between 1.6 and 1.9 m.daN (11.8 and 14 lbf.ft.).

(j)Make certain that fan operates correctly (Ref. 32-48-11, P. Block 601).

(k)Remove safety clips and tags and close circuit breakers 17GS and 1GV.

(l)Remove safety clip and tag and close circuit breaker 1GS, 2GS, 3GS or 4GS corresponding to removed impeller.

(5)Test

(a)Carry out a functional test (Ref. 32-48-00, P. Block 501).

(6)Close-up

(a)Remove warning notice.

(b)Make certain that working area is clean and clear of tools and miscellaneous items of equipment.

**ON A/C 101-200,

Post SB 32-2131 For A/C 101-200,

2. Fan Motor

A. Equipment and Materials

ITEM	DESIGNATION
(1)MG174-04	Disassembly Tool
(2)	Extractor
(3)MG174-500-02 or 4610030500	Motor Extraction Tool
(4)	Wheel Chocks
(5)	Corrosion Resistant Steel Lockwire 0.8 in. Dia. (0.032 in.)
(6)	Circuit Breaker Safety Clips
(7)	Warning Notice
(8)Material No. 04-003	Common Greases (Ref. 20-31-00)
(9)Material No. 04-004	Common Greases (Ref. 20-31-00)
10)Material No. 04-022	Common Greases (Ref. 20-31-00)
11)Material No. 04-020	Common Greases (Ref. 20-31-00)
12)Material No. 11-002	Cleaning Agents (Ref. 20-31-00)

Referenced Procedures

ITEM	DESIGNATION
- 07-12-00, P. Block 1	Jacking for Wheel Change
- 32-48-00, P. Block 501	Brake Cooling
- 32-48-11, P. Block 601	Brake Fan

B. Procedure

**ON A/C 101-200,

Post SB 32-2131 For A/C 101-200,

(Ref. Fig. 402)

**ON A/C 101-200,

Post SB 32-2131 For A/C 101-200,

(Ref. Fig. 403)

**ON A/C 101-200,

Post SB 32-2131 For A/C 101-200,

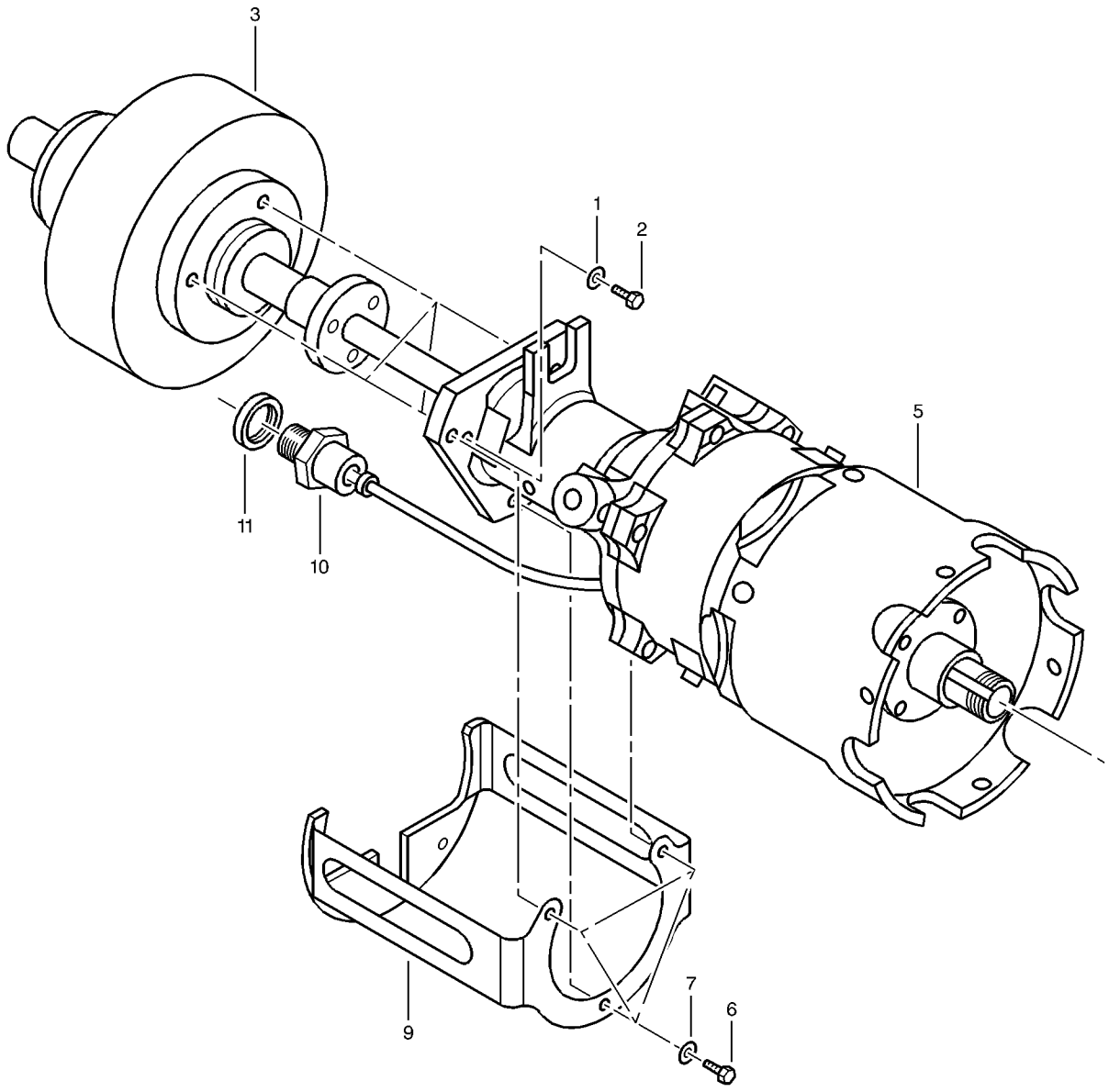
(1)Job set-up
(a)Position wheel chocks.
(b)On panel 400VU
- make certain that ON legend on BRK HOT indicating and fan control pushbutton switch 30GW is off and prohibit its operation by displaying a warning notice.

(c)Open, safety and tag the following circuit breakers :

PANEL	SERVICE	IDENT.	LOCATION
133VU	HYDRAULIC/BRAKES/FAN/CTL	17GS	331/V53
133VU	HYDRAULIC/TIRE/PRESS	1GV	333/T54

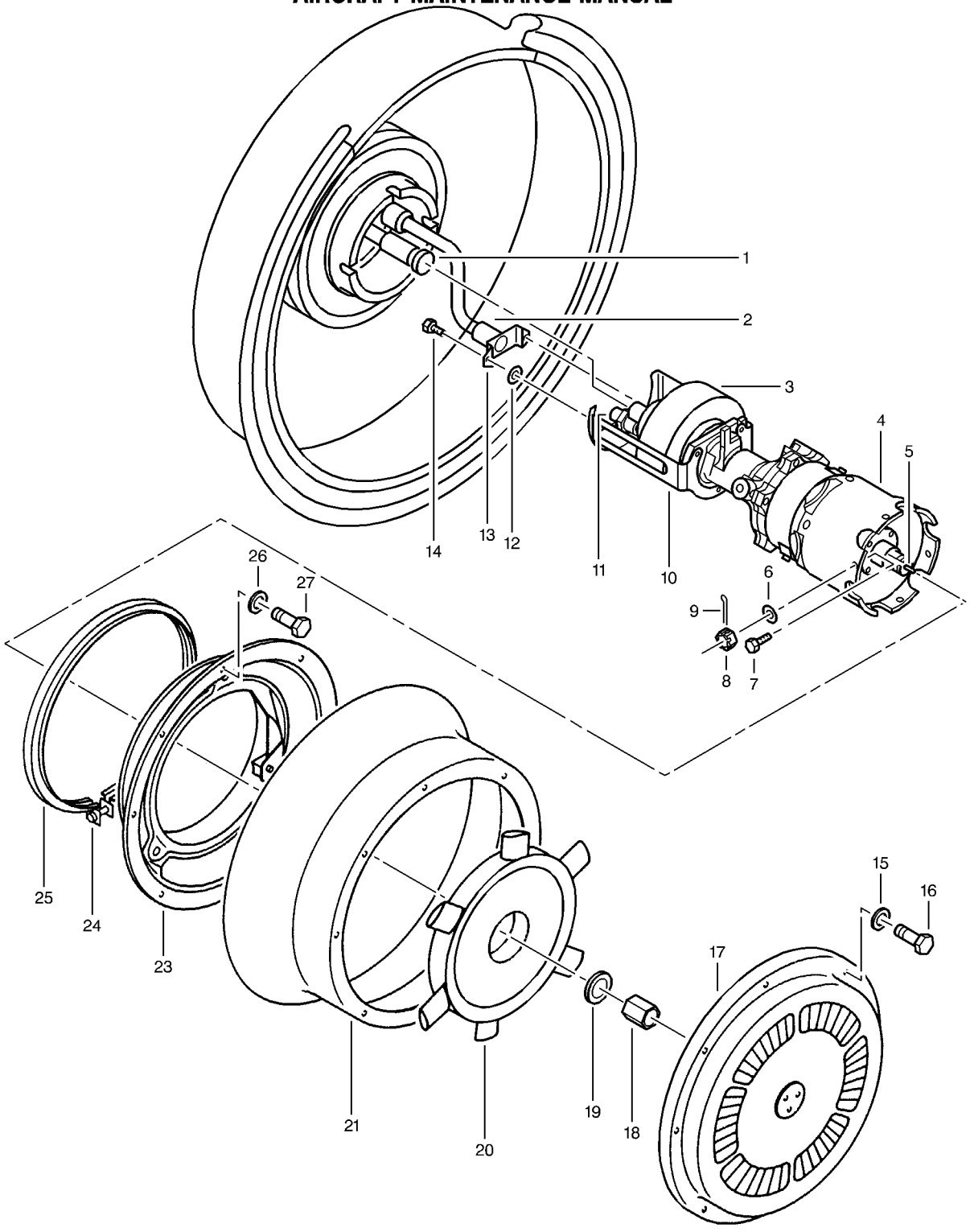
(d)Make certain that circuit breaker associated with fan motor to be removed is open, safetied and tagged :

PANEL	SERVICE	IDENT.	LOCATION
133VU	HYDRAULIC/BRAKE FANS/WHEEL/5 & 6	1GS	334/S52
133VU	HYDRAULIC/BRAKE FANS/WHEEL/3 & 4	2GS	335/R55
133VU	HYDRAULIC/BRAKE FANS/WHEEL/1 & 2	3GS	335/R52
133VU	HYDRAULIC/BRAKE FANS/WHEEL/7 & 8	4GS	334/S55



BM5 32 48 11 4 FHM0 00

Transmission Unit and Fan Motor
Figure 402



BM5 32 48 11 4 FFM0 01

Brake Fan Motor Assembly
Figure 403

R

**ON A/C 101-200,

Post SB 32-2131 For A/C 101-200,

(2)Removal
(Ref. Fig. 403)
R (a)Remove screws (16) and tab washers (15).
(b)Remove debris guard (17) from tachometer.
CAUTION : DRAW DEBRIS GUARD ALONG WHEEL AXLE CENTERLINE TO AVOID DAMAGING TACHOMETER DRIVE SHAFT.
(c)Clean nut (18) area with cleaning agents (Material No. 11-002) and dry with filtered compressed air.
(d)Cut and remove lockwire and turn fan (20) counterclockwise and pull axially while unscrewing central nut (18).
(e)Remove impeller (20) and retain washer (19).
(f)Remove shroud (21).
(g)Remove bolt (27) and washers (26).
(h)Remove casing (22).
(j)Loosen nut (24) to remove clamp (25). Remove adapter (23) and retain clamp (25).
(k)Remove fan mounting assembly (4).
CAUTION : TAKE CARE NOT TO DAMAGE CABLE DURING EXTRACTION OF MOUNTING (4).
CAUTION : DO NOT USE TACHOMETER ROTATING PARTS FOR EXTRACTION.
- Remove bolt (7), washer (6), nut (8) and cotter pin (9).
- Remove mounting assembly (4) from axle.
- Using extractor.
(l)Disconnect motor connector (11) from fan connector (2).
- Cut and remove heat shrinkable sleeve.
- Remove nuts (12) and screws (14).
- Remove support (13) and disconnect fan connector (2).
(m)Disconnect tachometer connector (1) from tachometer (3).
(n)Remove fan motor (5).
(Ref. Fig. 402)
- Cut and remove lockwire.
- Remove nut (11) and disengage connector (10) from support (9).
- Remove bolt (6), retain washer (7) and remove support (9).
- Remove screws (2), retain washers (1) and extract fan motor (5).
CAUTION : TAKE CARE NOT TO DAMAGE TACHOMETER SHAFT DURING EXTRACTION OF FAN MOTOR (5).
(3)Preparation of replacement component
(a)Depreserve replacement fan motor (5) and check for correct condition.
(4)Installation
(Ref. Fig. 402)
NOTE : Do not mix Material No. 04-004 with Material No. 04-022. You can use Material No. 04-022 as an alternative to Material No. 04-004. Clean and degrease the parts before you use Material No. 04-022.
(a)Apply a light coat of grease (Material No. 04-003) on screws (2).
(b)Install tachometer shaft in fan motor (5) and attach tachometer and

fan motor with screws (2) and washers (1).TORQUE to between 0.20 and 0.25 m.daN (18 to 22 lbf.in.).

(c)Install support (9) on fan motor (5) with screws (6) and washers (7). TORQUE to between 0.25 and 0.30 m.daN (22 and 26 lbf.in.).

(d)Position motor connector (3) on support (9) and tighten nut (11).

(e)Connect motor connector (11) to fan connector (2).
(Ref. Fig. 403)
- Position support (13) on support (10).
- Install screws (14) and nuts (12) and TORQUE to between 0.08 and 0.10 m.daN (7.1 to 9 lbf. in.).
- Install new heat shrinkable sleeve.

(f)Connect tachometer connector (1) to tachometer (3).

(g)Grease inner surface of axle with grease (Material No. 04-004) or (Material No. 04-022) over a lenght of approximately 100 mm (3.94 in.).

(h)Install fan mounting assembly (4) in its housing taking care to position cables correctly.
NOTE : Slide fan mounting assembly (4) into axle without forcing.

(j)Align axle holes with holes in mounting assembly (4). Secure fan mounting assembly (4) axle with bolts (7), washers (6) and nuts (8).
CAUTION : BOLT HEADS SHALL BE INSTALLED INSIDE AXLE.
COTTER PIN (9) SHALL BE INSTALLED PERPENDICULAR TO AXLE.

(k)Tighten nuts (8) and install cotter pins.
NOTE : Make certain that the rotating part of the transmission unit rotates freely.

(l)Apply a light coat of grease (Material No. 04-020) on the threads of the nut (24) of the clamp (25).

(m)Install adapter (23) by correctly positioning drive key. Secure adapter (23) to wheel using clamp (25). Tighten clamp (25) with nut (24). TORQUE nut to between 0.28 and 0.34 m.daN (25 and 30 lbf. in.).
NOTE : adapter (23) shall bear against wheel over its full circumference.

(n)Install casing (22), washers (26), screws (27). TORQUE to between 0.35 and 0.40 m.daN (31 to 35.5 lbf.in).

(p)Apply a light coat of grease (Material No. 04-003) to bottom of nut (18) thread.

(q)Position impeller (20) and engage shaft key, washer (19) and nut (18). TORQUE nut (18) to between 3.1 and 3.4 m.daN (23 and 25 lbf. ft.) and safety with lockwire.
NOTE : Check that impeller and drive shaft rotate freely.

(r)Grease tachometer drive shaft splines and debris guard adaptor splines with grease (Material No. 04-020).

(s)Apply a light coat of grease (Material No. 04-004) or (Material No. 04-022) to screws (16).

(t)Install shroud (21) to bear against the wheel.

(u)Position debris guard (17).

(v)Make sure that tachometer drive shaft is correctly engaged.

R (w)Locate debris guard on location pegs, install screws (16) and
R tab washers (15) and TORQUE to between 1.6 and 1.9 m.daN (11.8 to 14 lbf. ft.).

(x)Make certain that fan operates correctly (Ref. 32-48-11,

P. Block 601).
(y)Remove wheel chocks from wheels of main landing gear concerned.
(z)Jack up axle concerned (07-12-00, P. Block 1).
(aa)Manually rotate wheel at least one turn and check that there is no hard point.
(ab)Lower the aircraft onto its wheels (07-12-00, P. Block 1) and position wheel chocks.
(ac)Remove safety clips and tags and close circuit breakers 17GS and 1GV.
(ad)Remove safety clip and tag and close circuit breaker 1GS, 2GS, 3GS or 4GS associated with removed fan motor.

(5)Tests
(a)Perform a fan functional test (Ref. 32-48-00, P. Block 501).

(6)Close-up
(a)Remove warning notice.
(b)Make certain that working area is clean and clear of tools and miscellaneous items of equipment.

1. General

(Ref. Fig. 001)

A. Nose wheel steering is possible by means of a servomechanism mechanically controlled from the flight compartment and powered by the Green hydraulic pressure tapped from the landing gear extension system via a selector valve. The selector valve shuts off pressure to the steering system when the shock absorbers are extended, during ground towing or when the engines are shut down.

(1) A towing lever on the interphone box enables the steering system to be deactivated for towing purposes. Nose wheel deflection of ± 95° is possible in this configuration.

(2) Independent control is achieved using either of the steering control handwheels located on each side of the flight compartment. Maximum nose wheel steering angle is then ± 65°.

(3) A non-reversible connection with the rudder pedal is achieved by means of a mechanical coupler and enables nose wheel steering limited to ± 6° during high speed ground roll.

(4) A internal cam mechanism returns the wheels to the centered position after takeoff.

B. In the absence of Green hydraulic pressure the aircraft can be guided using the Alternate differential braking system.

2. Component Location

(Ref. Fig. 002)
(Ref. Fig. 003)
(Ref. Fig. 004)

FIN	FUNCTIONAL DESIGNATION	PANEL	ZONE	ACCESS DOOR	ATA REF.
1280	VALVE-STEERING		711		32-51-21
1284	CONTROL-STEERING		711		32-51-23
1285	COUPLER-N/W STEERING CTL		121	132AZ	32-51-14
1482	FITTING-SWIVEL		123		32-51-19
	HANDWHEEL-CAPTAIN	1VU	211		
	HANDWHEEL-FIRST OFFICER	7VU	212		
	TORSION BAR, L/R		121	131AZ	
			122	132AZ	
	REDUCTION GEAR BOX, L/R		121	131AZ	
			122	132AZ	
	SPRING ROD, L/R		121	131AZ	
			122	132AZ	
	REDUCTION GEAR BOX-3:1		122	132AZ	
	CABLE QUADRANT		711		
3GC	SELECTOR VALVE-N/W STRG		123		32-51-17
3WC	INTERPHONE BOX		711		

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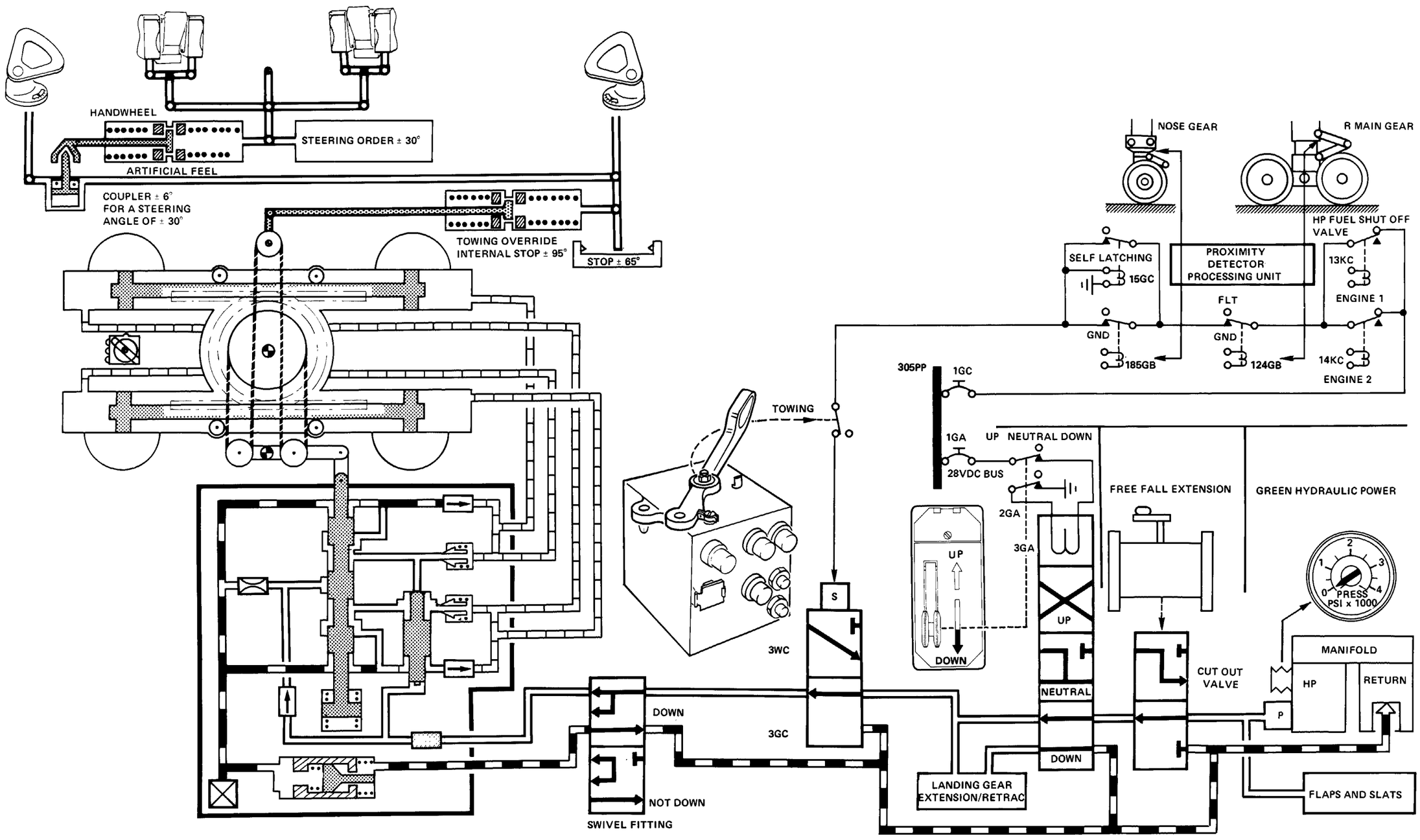

Steering System - Schematic
Figure 001

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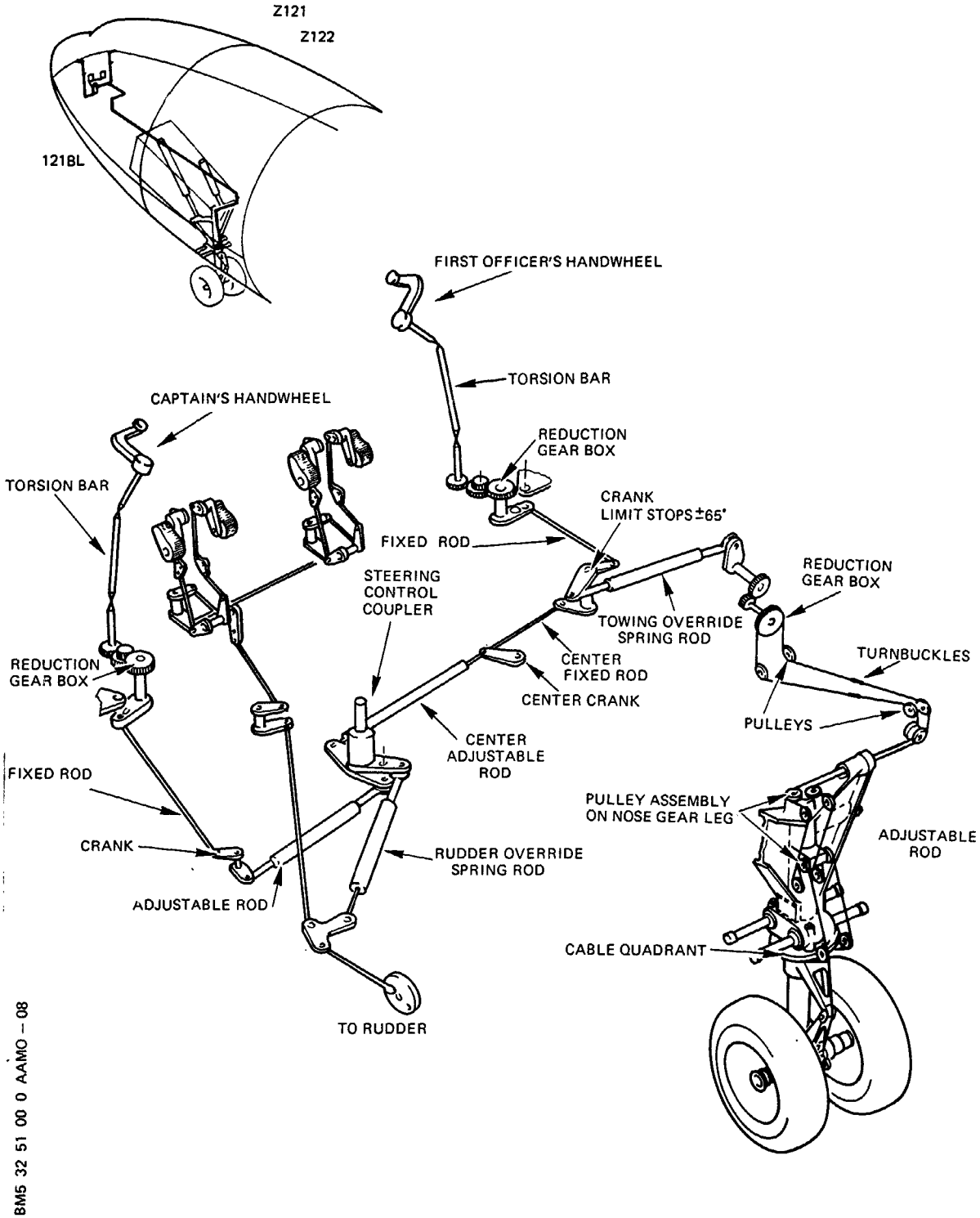
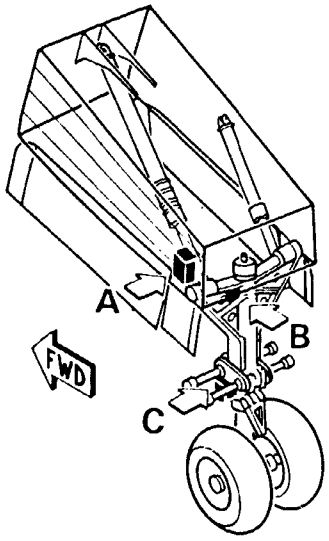
EFFECTIVITY: ALL

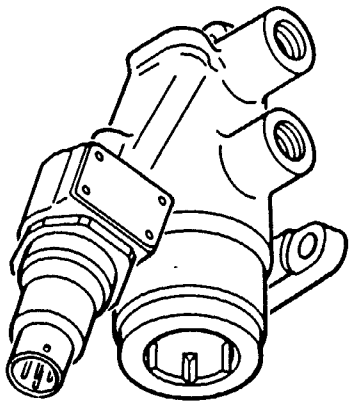
PIA



Steering Mechanical Control - Component Location
Figure 002

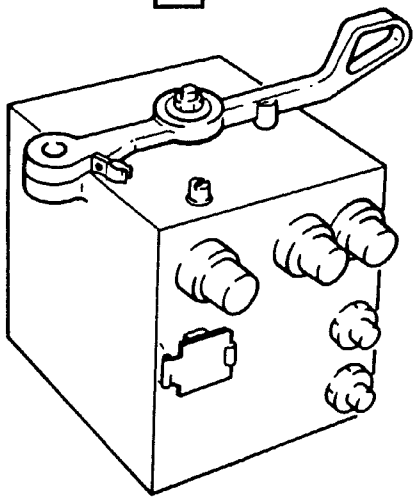


A



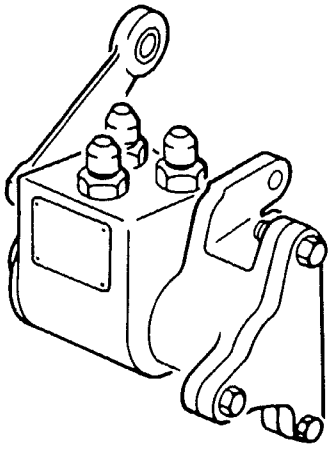
STEERING SELECTOR VALVE 3GC

C



INTERPHONE BOX 3WC

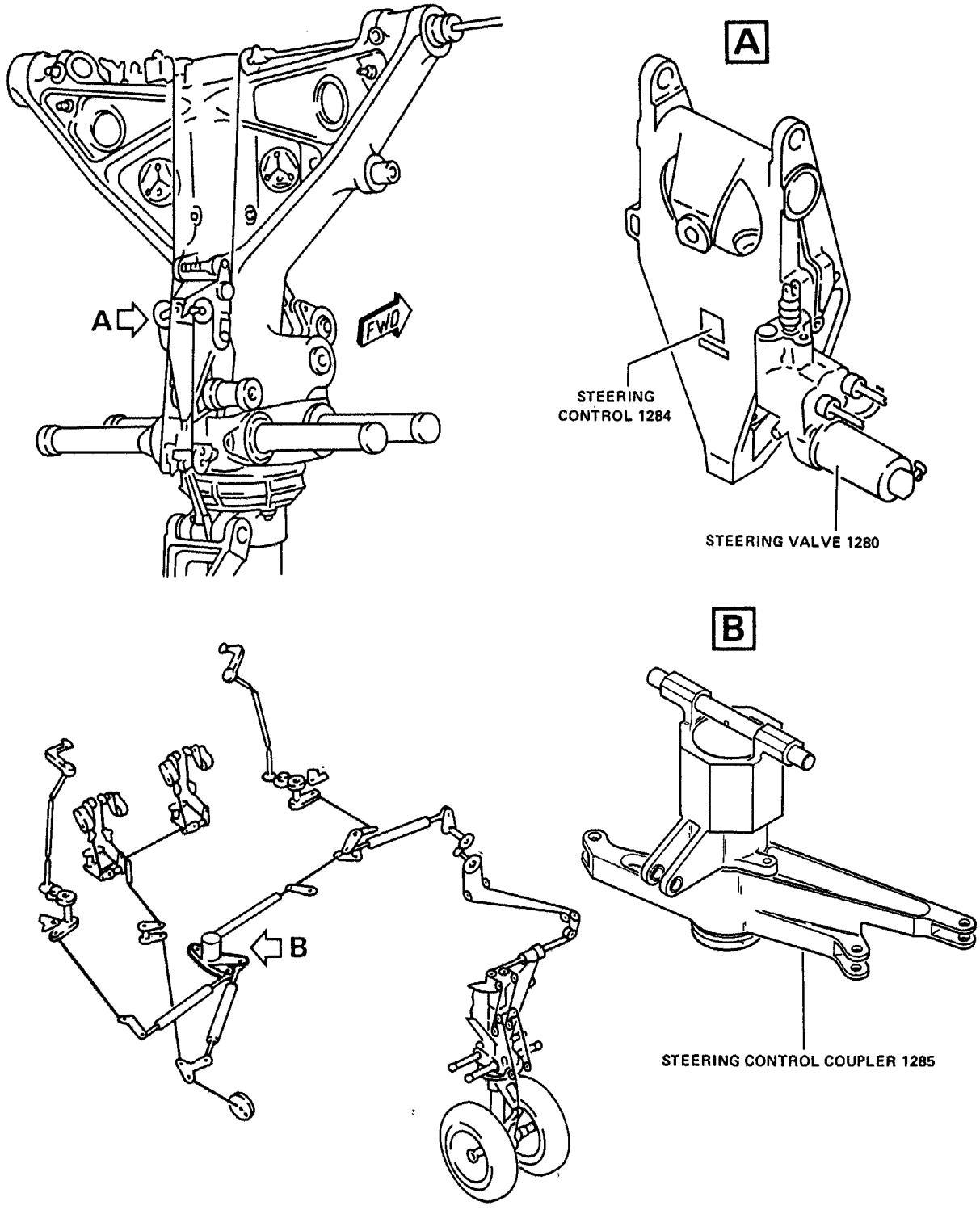
B



SWIVEL FITTING 1482

BM5 32 51 00 0 BTMO – 08

Steering - Component Location
Figure 003



Steering - Component Location
Figure 004

3. Mechanical Control - Linkage - Coupler

A. General
(1)Command input is achieved from the flight compartment.
(2)The position of the nose gear leg rotating tube, and consequently that of the nosewheel axle is slaved to that of the control ; feedback is mechanical.
(3)Steering is achieved by hydraulic power. The Green system downstream of the landing gear selector valve supplies a control valve, which directs pressure to the two actuating cylinders (hydraulically coupled). The control valve slide valve receives the mechanical command via a system of cables and pulleys.
(4)The input controls are as follows :
(a)Two interconnected steering control handwheels ; one for the Captain and one for the First Officer.
(b)The rudder pedals.

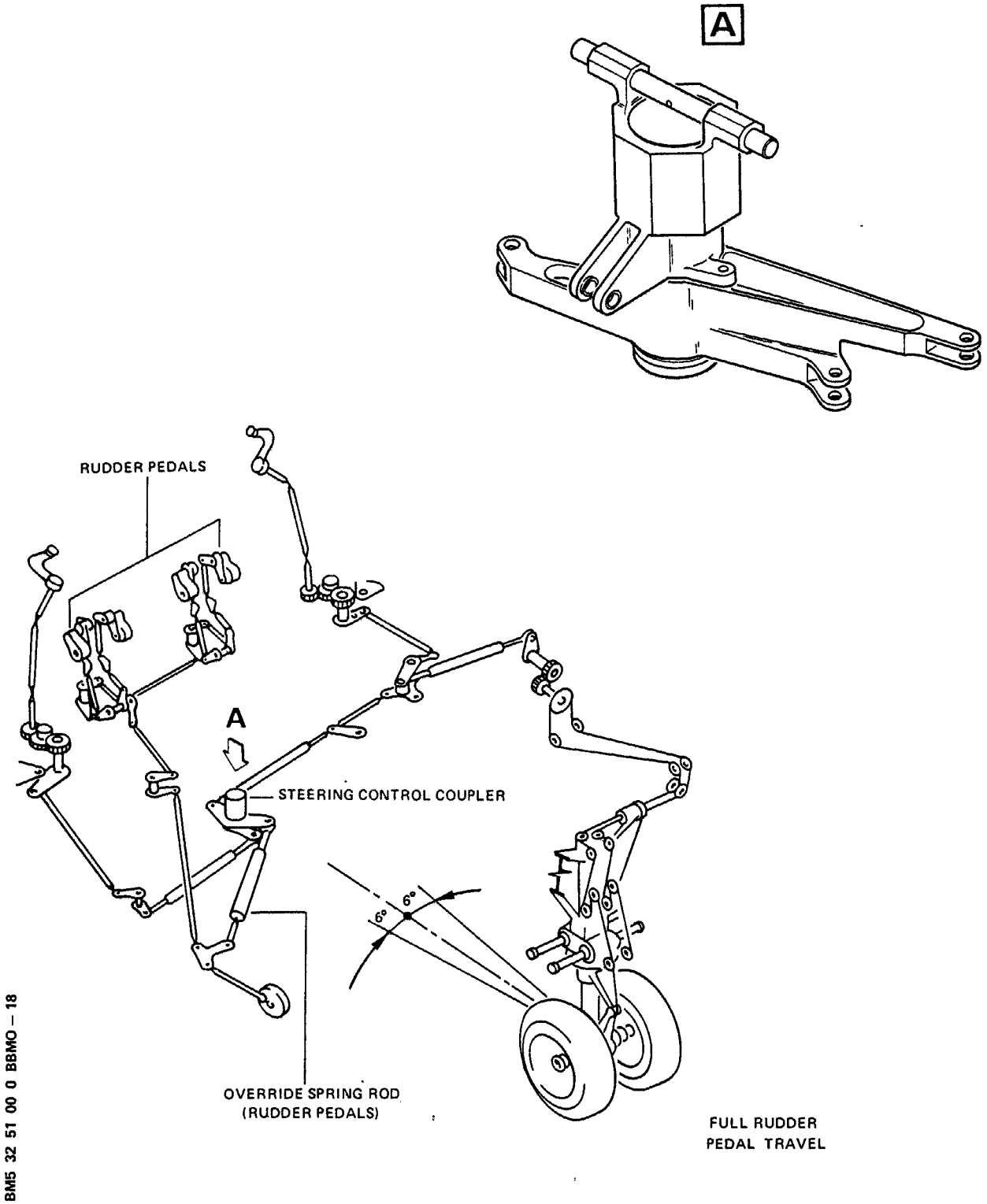
B. Steering via control handwheels
(1)The handwheels are used to steer the aircraft during taxiing and provide a maximum steering angle of ± 65° for maximum handwheel travel of ± 318°30.
(2)The handwheels are mechanically interconnected, movement of one handwheel causing movement of the other.

C. Steering via Rudder Pedals (Ref. Fig. 005)
(1)This system is used during takeoff and landing to maintain the aircraft on the runway centerline. The rudder pedals provide a maximum nose wheel steering angle of ± 6° for a rudder deflection of ± 30°.
(2)The rudder pedals are mechanically linked to the steering control handwheels via a mechanical unit (coupler).
(3)Actuation of the rudder pedals drives the handwheels but the reverse is rendered impossible, although the mechanical connection is maintained, by a double-acting spring rod the threshold of which is not sufficient to overcome the artificial feel associated with the pedals.
(4)When steering via the handwheels, the spring rod compresses and provides artificial feel.

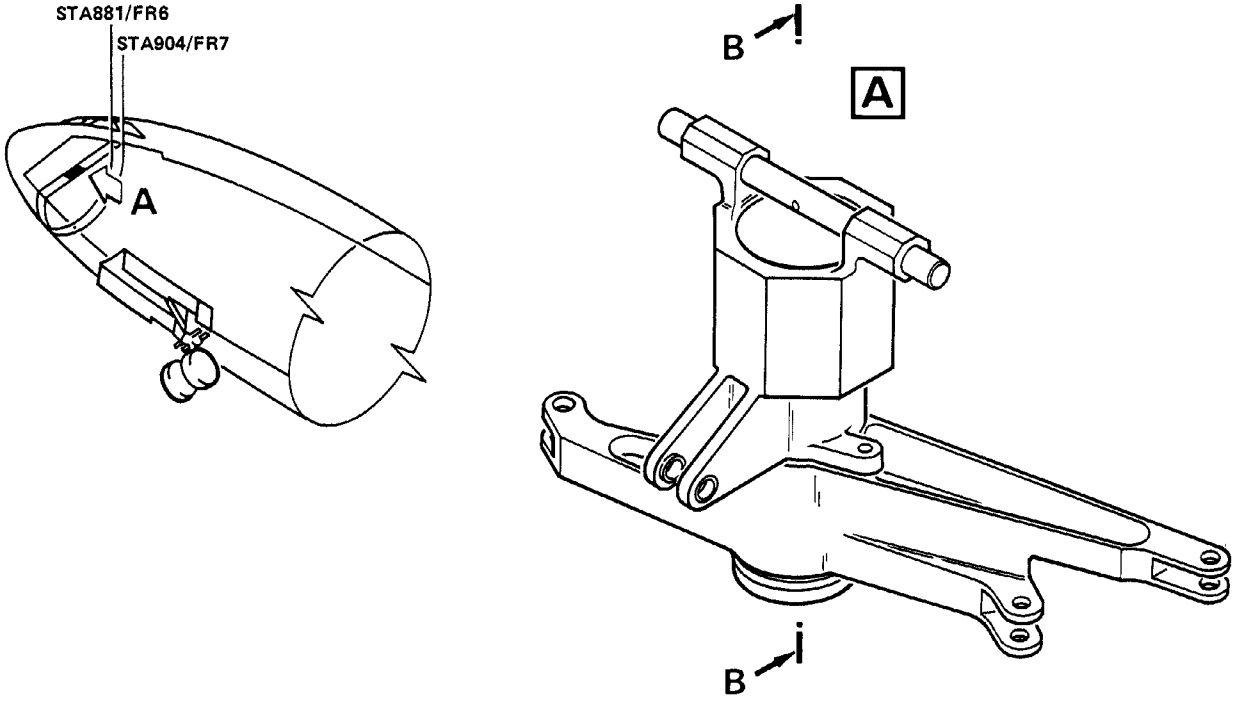
D. Steering Control Coupler (Ref. Fig.)
(1)The coupler integrates two rotating connecting units via a single control bellcrank mounted on a shaft.
(2)The two connecting units are permanently interconnected by a common bellcrank connected to the handwheel linkage and rudder pedal linkage via a spring rod.

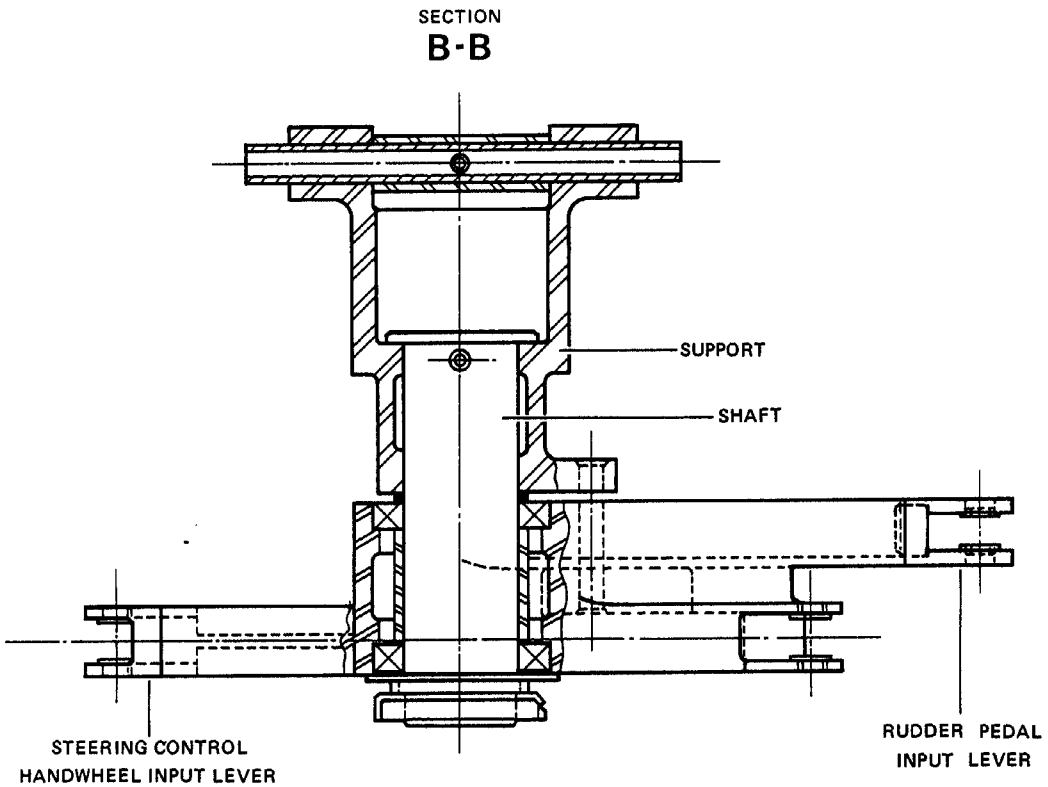
4. Hydraulic Control - Control Valve - Actuating Cylinders

A. General (Ref. Fig. 008, 009)
(Ref. Fig. 007)
(1)The nose wheel actuating cylinders are supplied by the Green hydraulic system. The supply system is connected to the landing gear extension system downstream of the landing gear selector valve.



Pedal/Handwheel Linkage
Figure 005





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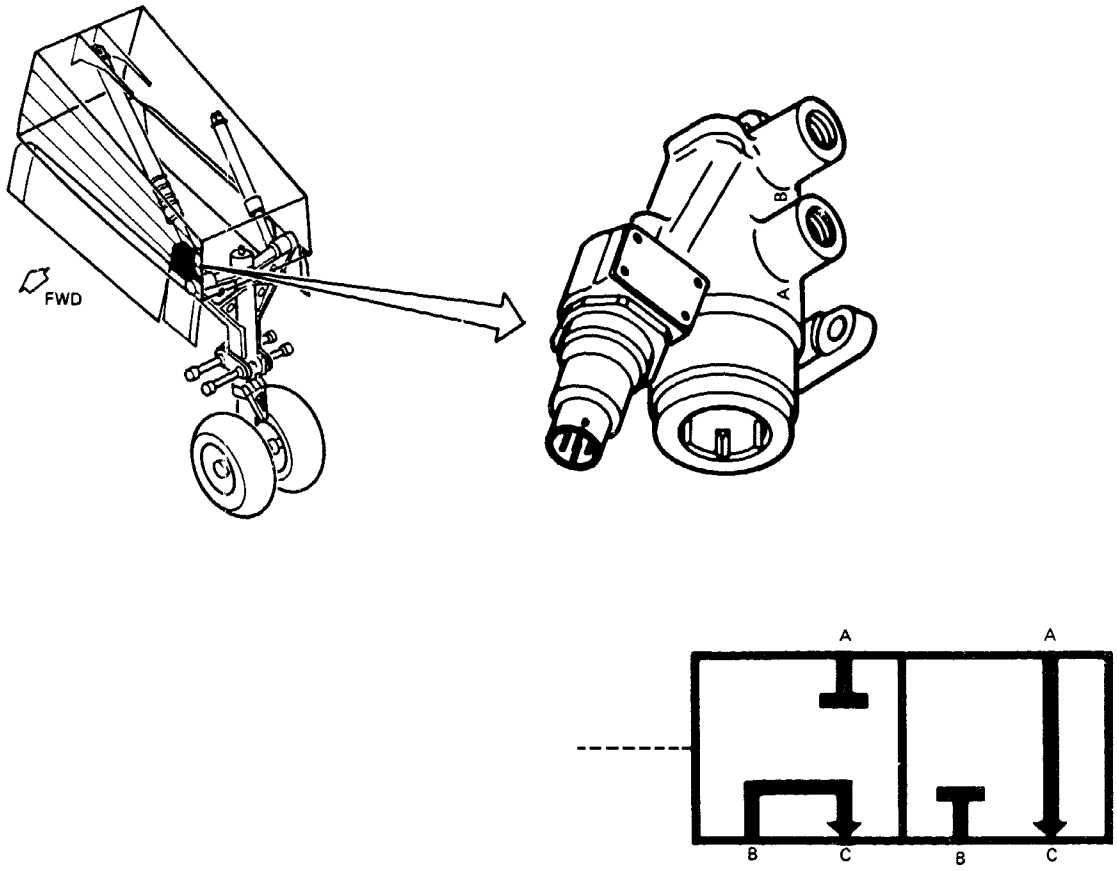
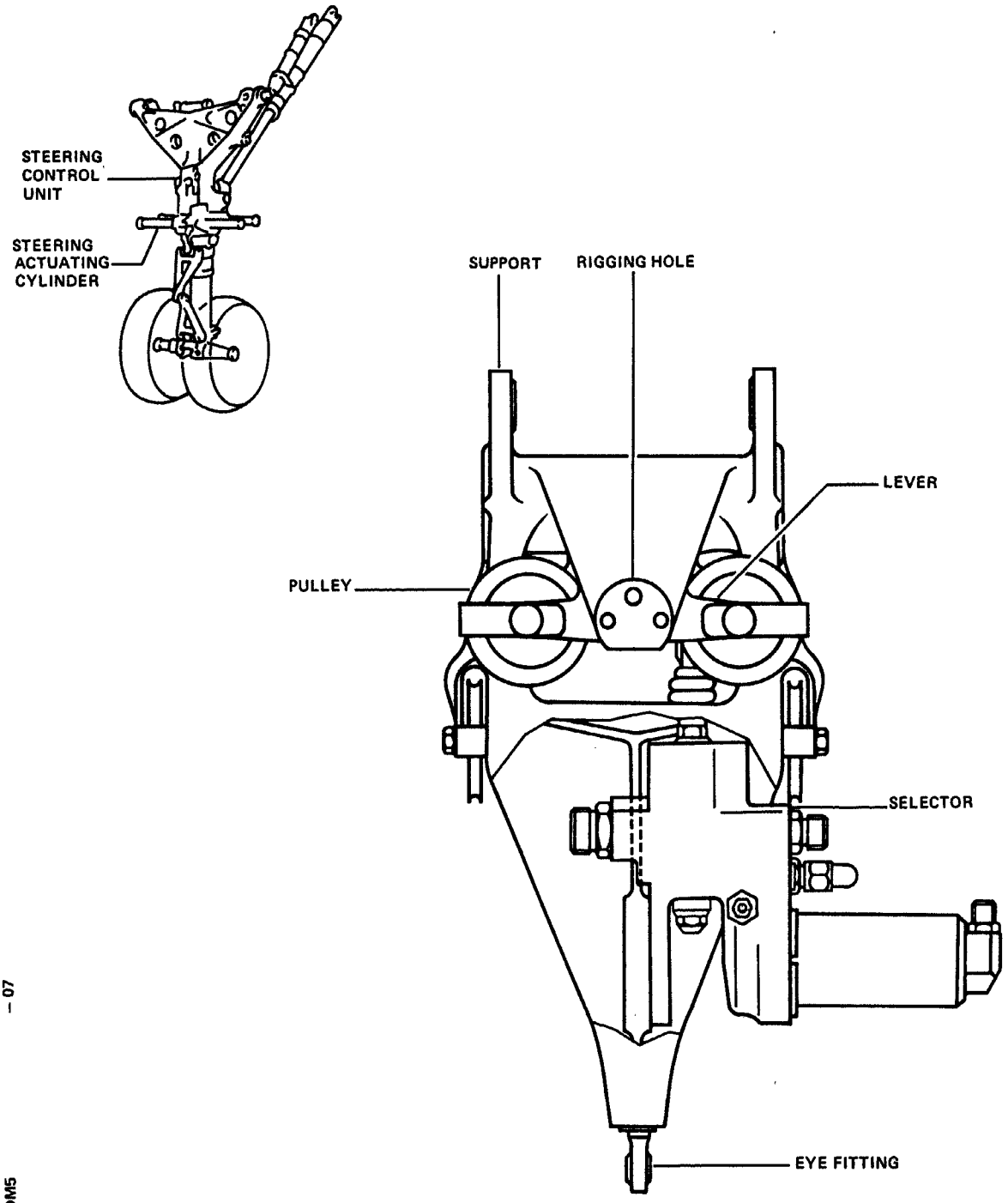
Steering Control Coupler
Figure 006



Steering Selector Valve
Figure 007

(2)The nose wheel steering system is supplied with pressure via the steering selector valve as soon as the RH main gear and nose gear shock absorbers are compressed.
(3)A control valve directs pressure to the steering actuating cylinders in accordance with the mechanical command transmitted by the differential pulley system. The control valve includes :
  (a)an input filter in the supply line (40 μ absolute)
  (b)a check valve in the supply
  (c)two restrictors associated with anti-shimmy protection
  (d)two bypass valves associated with anti-shimmy protection
  (e)a restrictor in the anti-shimmy accumulator delivery line
  (f)a slide valve connected to the differential pulley system actuated by the control cables.
  (g)an anti-shimmy accumulator incorporating a pressure relief valve calibrated at 16 bars (232 psi).
(4)The differential pulley system delivers a mechanical command, dependent on the position of the handwheels (or pedals) and the corresponding position of the nose wheels, to the control valve. Feedback is provided by a system of pulleys and cables.
(5)Two steering actuating cylinders are installed on the lower part of the nose gear shock strut. The actuating cylinders are identical and of the double body, double-acting type. They are hydraulically coupled.
(6)Each sliding rod includes a rack meshed to a pinion mounted on the nose gear leg rotating tube.
(7)Steering motion is transmitted from the rotating tube to the shock absorber carrying the axle by the torque links.

B. Operation
(1)Normal operation
(a)Pilot action on the control handwheel or pedals causes displacement of the control valve slide valve ; pressure is then admitted to the corresponding chamber of each actuating cylinder when the control valve is supplied.
(b)The rack on each actuating cylinder sliding rod drives the pinion mounted on the rotating tube.
(c)When the required steering angle is attained, the slide valve tends to regain its center (neutral) position thus shutting off pressure to the actuating cylinders.
(2)Anti-shimmy operation
(a)When the control valve is not supplied, a valve interconnects the two chambers of each actuating cylinder via the bypass valves (anti-shimmy function).
(b)To prevent cavitation and provide efficient anti-shimmy protection, the system is pressurized to 16 bars (232 psi). The pressure is obtained via a restrictor in the high pressure line and a pressure relief valve in the reservoir return line.
(c)This system enables each actuating cylinder chamber to be directly supplied via the bypass valves.
(3)Towing
(a)Steering angles of ± 95° can be achieved without disconnecting the torque links between the rotating tube and the shock absorber. This is made possible by overtravel provision in the actuating cylinders.
(b)A towing microswitch serves to cut off the electrical supply to the steering selector valve. The entire steering system is then connected to reservoir return during the towing operation.
(c)Steering angles in excess of 65° result in compression of a spring rod incorporated in the mechanical control linkage.



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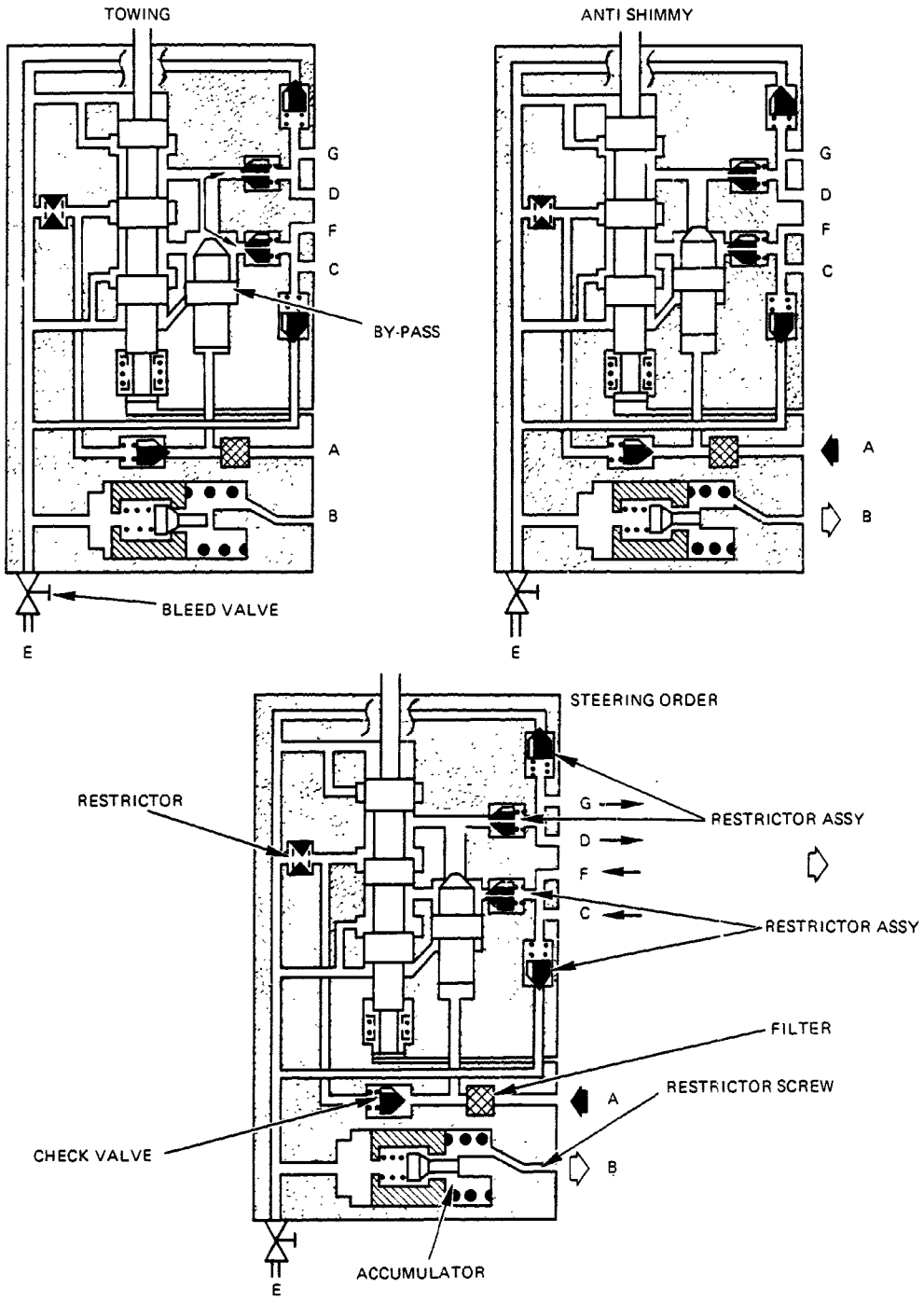
Steering Control Valve
Figure 008



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Steering Control Valve - Schematic
Figure 009

5. Electrical Functions

A. Description

(1) The steering selector valve is energized and admits pressure to the control valve when all the following conditions are satisfied :

(a) RH main gear and nose gear shock absorber relays energized (shock absorbers compressed).

(b) The contacts of the microswitch controlled by the towing control lever are closed (control lever in normal position).

(c) One of the two relays controlled by the HP fuel shut off valves de-energized (corresponding valve in open position).

(2) Inversely, when one of the first two conditions is not fulfilled, the selector valve is de-energized. However, the nose gear shock absorber relay is self-latched to prevent cuts in the hydraulic pressure supply resulting from rebound of the nose gear during the takeoff and landing phases.

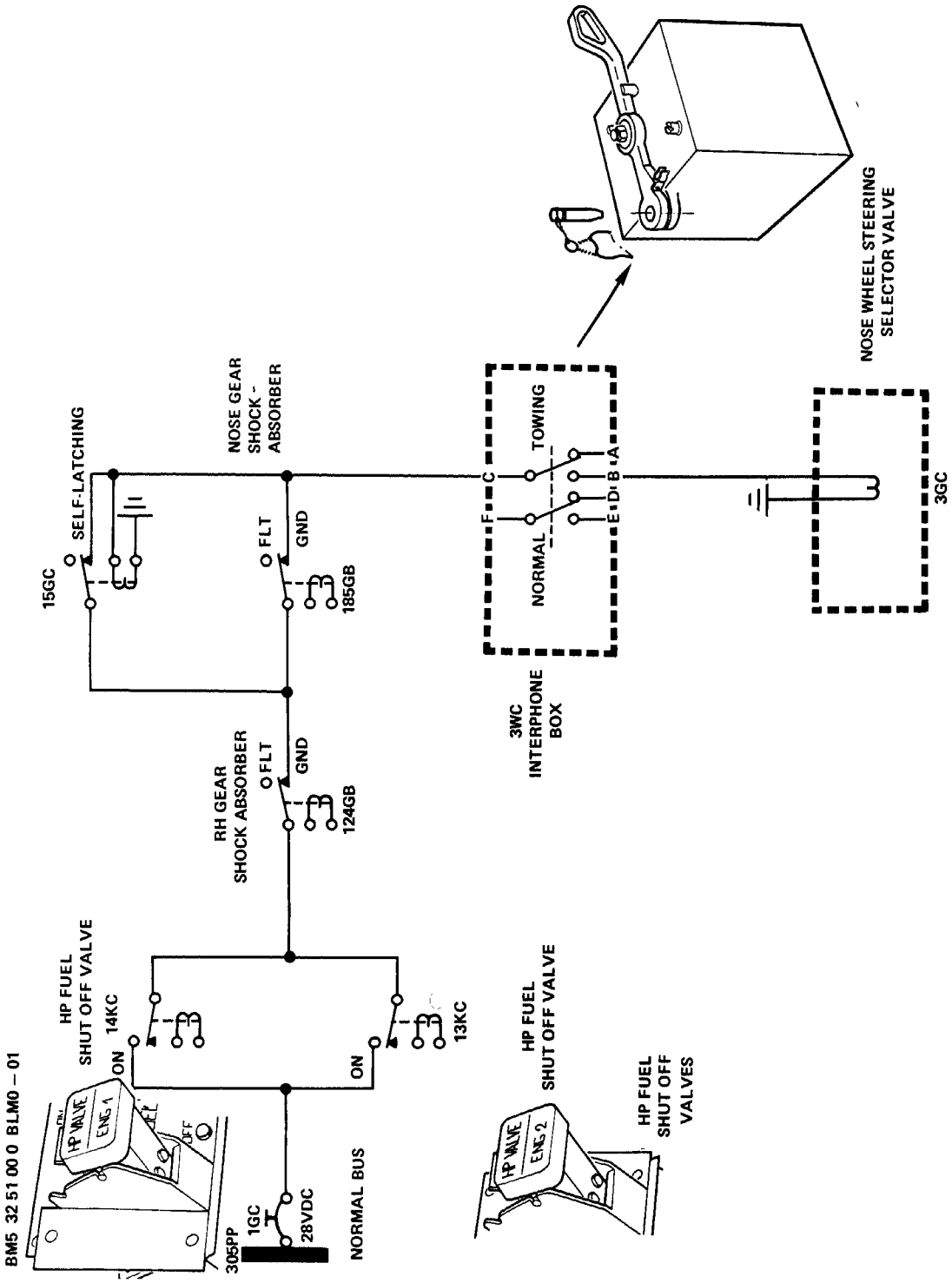
(3) Both of the relays controlled by the HP fuel shut off valves must be energized (valves closed) to cut off electrical power to the selector valve. This function, which isolates the nose wheel steering system when the engines are shut down, enables the check list to be performed on the electric pump without internal leakage occurring in the control valve (low available delivery).

6. Operation

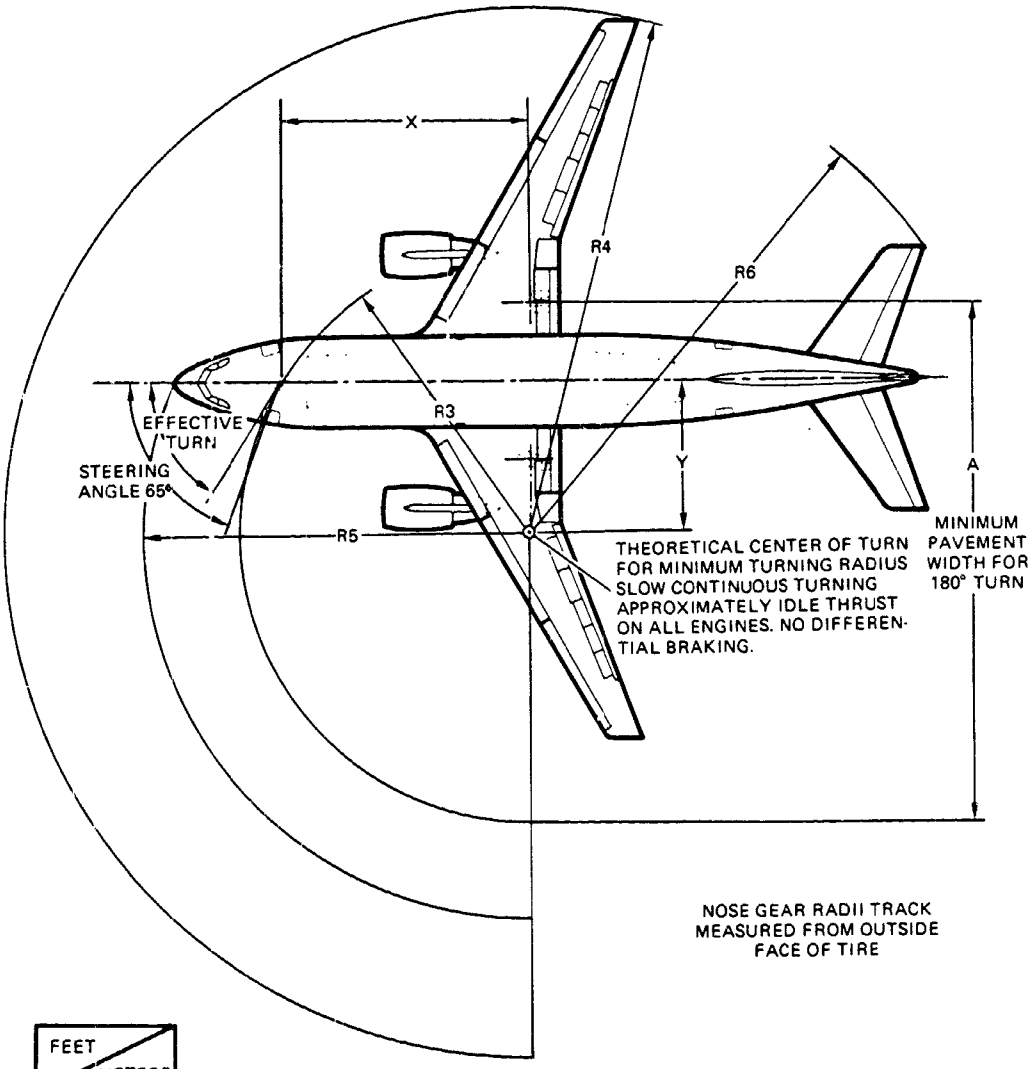
The nose wheels are steerable by means of servomechanism controlled mechanically from the flight compartment and powered by Green hydraulic pressure tapped from the landing gear extension system.
(Ref. Fig. 010)

7. Characteristics

(Ref. Fig. 011)



Steering - Electrical Circuit
Figure 010



A/C C.3	EFFECTIVE TURN ANG	X	Y	A	R3	R4	R5	R6
FWD 18 %	60°2	50.89 15.51	28.77 8.77	105.42 32.13	58.63 17.87	103.25 31.47	77.37 23.58	97.77 29.80
AFT 35 %	55°8	50.89 15.51	34.16 10.41	113.69 34.65	61.52 18.75	108.17 32.97	79.53 24.24	100.92 30.76

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Aircraft Turning Radii
Figure 011

1. Control Cables

A. Reason for the Job
(1)Removal/Installation of cable section on nose landing gear.
(2)Removal/Installation of cable section between FR9 and FR16.
(3)Adjustment of steering control after cable replacement.

B. Equipment and Materials

	ITEM	DESIGNATION
	1.	Electrical Ground Power Unit - 3-Phase, 115/200 V, 400 Hz, 90 KVA
	2.	Square Steel Plates 1.2 m (4 ft)
	3. 98A32501005000	Pin-Rigging, Nose Gear Wheel Steering Unit
	4.	Safety Barriers
	5.	Wheel Chocks
	6.	Circuit Breaker Safety Clips
	7.	Access Platform 2 m - 2.6 m
	8. 98A32501003000	Pin-Rigging, Nose Gear Wheel Steering Control
	9. 99A32501010000	Device-Testing and Adjustment, Nose gear Wheel Steering Control
	10.C22646	Safety Pin
R	11.Material No. 04-027	Common Greases (Ref. 20-31-00)
	12.Material No. 09-001	Sealants (Ref. 20-31-00)
	13.Material No. 09-002	Sealants (Ref. 20-31-00)
	14.Material No. 11-002	Cleaning Agents (Ref. 20-31-00)
	Referenced Procedures	
	- 07-11-00, P. Block 1	Jacking for Aircraft Maintenance Operations
	- 09-11-00, P. Block 1	Towing
	- 12-12-32, P. Block 1	Landing Gear Replenishing
	- 24-41-00, P. Block 301	AC External Power Control
	- 29-10-00, P. Block 301	Main Hydraulic Power - Pressurization/ Depressurization
	- 29-14-00, P. Block 301	Hydraulic Reservoir Pressurizing System
	- 29-21-00, P. Block 301	Green Auxiliary Power
	- 32-12-11, P. Block 301	Main Gear Main Door - (Ground Door(s) Opening)
	- 32-22-11, P. Block 301	Nose Gear Main Door - (Ground Door(s) Opening)
	- 32-51-00, P. Block 301	Steering

C. Procedure
(1)Job set-up
(a)Jack up aircraft until nose gear wheels are clear of ground (Ref. 07-11-00, P. Block 1).
NOTE : Main landing gear shock absorbers compressed.
(b)On panel 4VU
- make certain that landing gear control lever is in DOWN position and prohibit its operation by displaying a warning notice.

(c)Between First Officer's and Third Occupant's seats
- make certain that landing gear Free Fall extension control handle is in Normal position.

(d)Open, safety and tag the following circuit breaker :

PANEL	SERVICE	IDENT.	LOCATION
133VU	HYDRAULIC/NOSE/WHEEL/STRG	1GC	333/T53

(e)Position access platform

(f)Position safety barriers prohibiting access to gear door travel ranges.
CAUTION : MAKE CERTAIN THAT DOOR TRAVEL RANGES ARE CLEAR.

(g)Open main gear doors (Ref. 32-12-11, P. Block 301) and nose gear doors (Ref. 32-22-11, P. Block 301).
WARNING : WHEN DOORS ARE OPEN MAKE CERTAIN THAT SAFETY COLLARS ARE POSITIONED ON DOOR ACTUATING CYLINDERS.

(h)Depressurize Green hydraulic reservoir (Ref. 29-14-00, P. Block 301) and prohibit its pressurization by displaying warning notices :
- on panel 429VU to prohibit APU starting
- on reservoir pressurization connector

(j)Depressurize Green hydraulic system (Ref. 29-10-00, P. Block 301) and prohibit its pressurization by displaying warning notice :
- on Green hydraulic system ground connectors
- on panel 427VU to prohibit operation of Green electric pumps (ELEC PUMPS pushbutton switch)

(k)Place towing control lever in towing position and install safety pin C22646.

(l)Make certain that main gear wheels are chocked.

(m)Connect electrical ground power unit (Ref. 24-41-00, P. Block 301).

(2)Removal/installation of cable on nose landing gear
(Ref. Fig. 401)
(Ref. Fig. 402)
(Ref. Fig. 403)
(Ref. Fig. 404)

(a)Removal

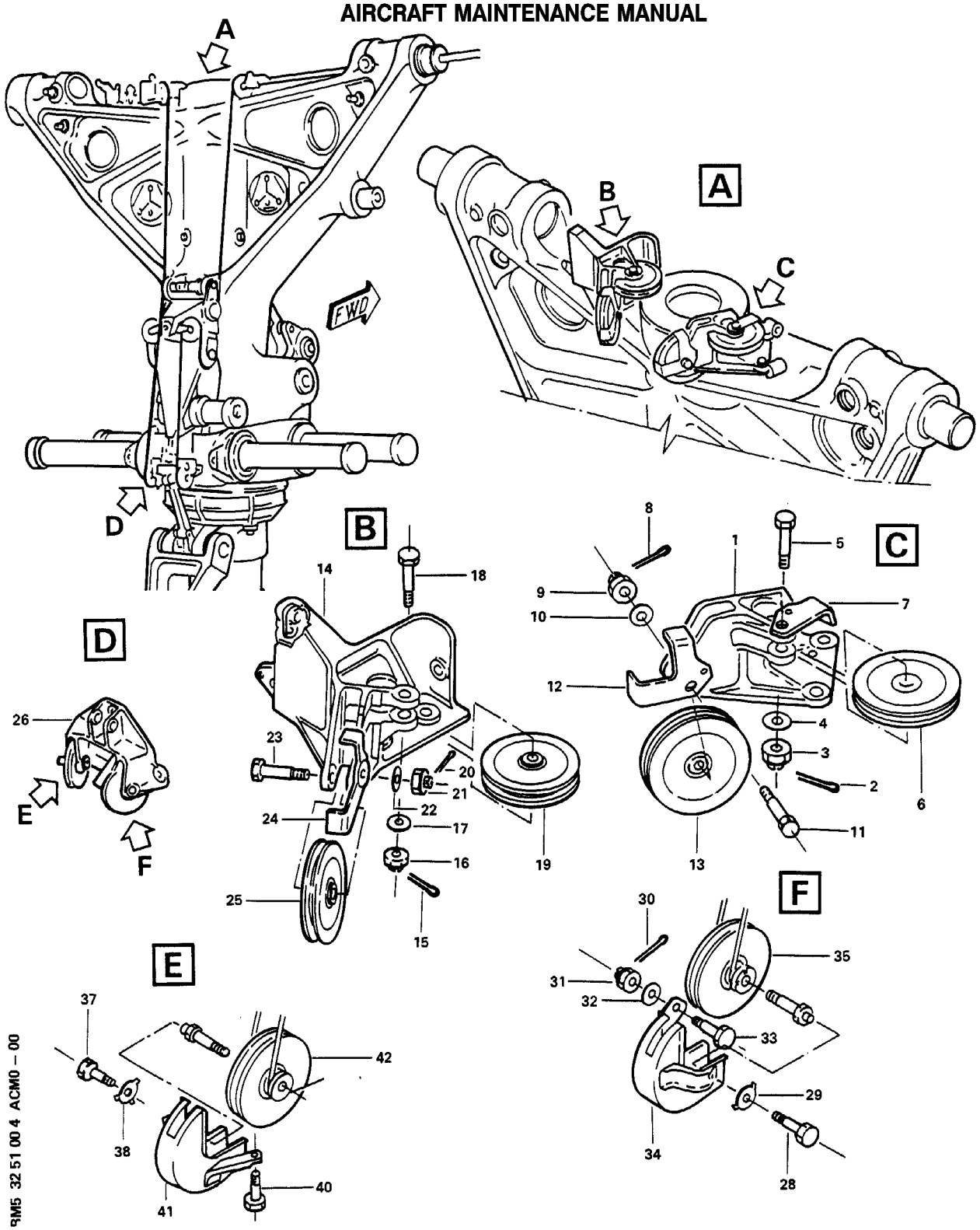
1 Remove protective rubber coating with a spatula taking care not to damage the surface finish.

2 In zone 122 remove floor panels PF and NF
- disconnect cable at turnbuckles
- remove and discard safety pins
- remove turnbuckles.

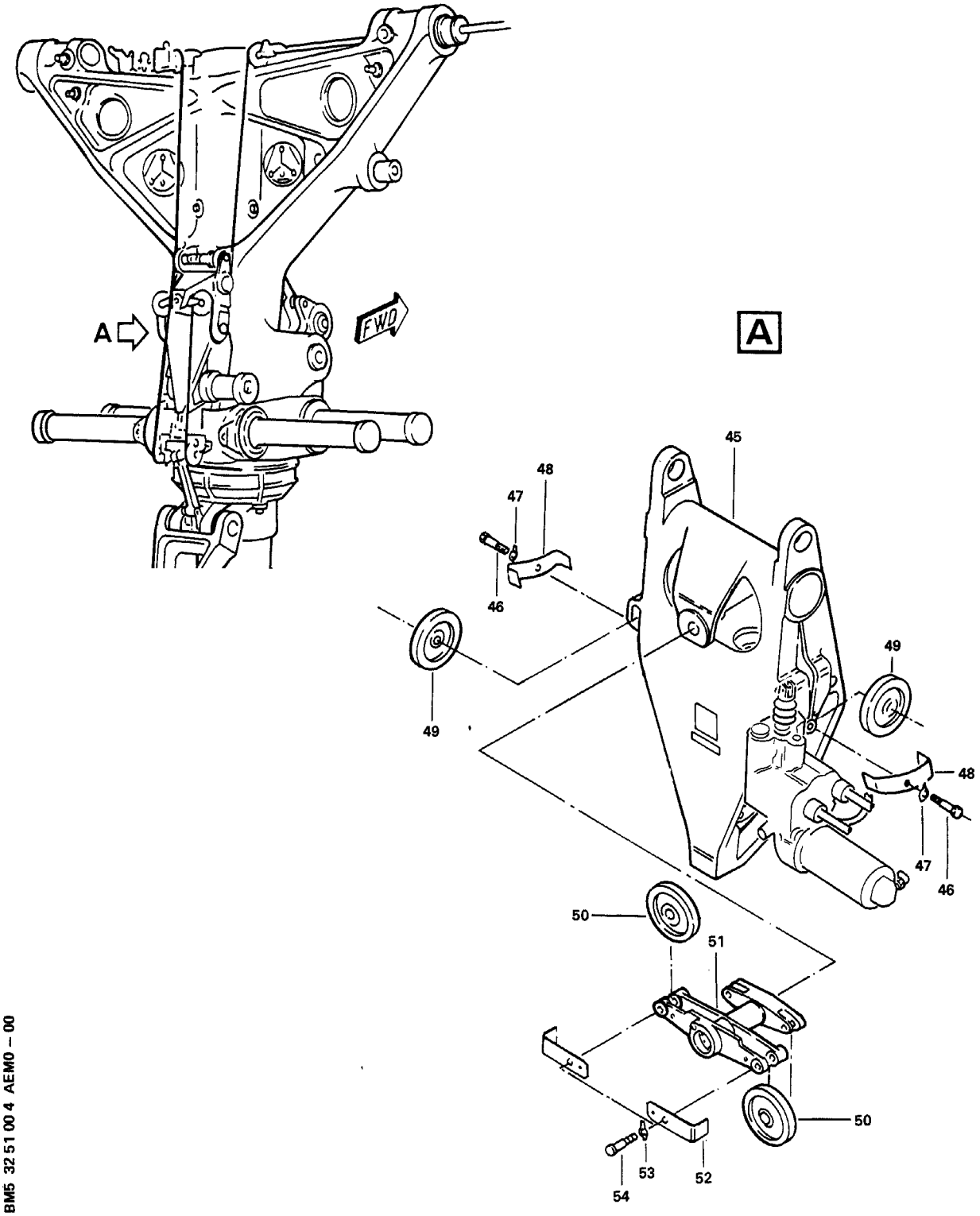
3 Remove cable guides on pulley assembly at FR16A.

4 Remove pressure seal at nose gear RH swivel bearing
- cut and remove lockwire and remove mounting plate
- remove teflon cable guide
(Ref. Fig. 401)

5 On support (1)
- Remove pulley (6) and cover (7) :
remove cotter pin (2), nut (3), washer (4) and bolt (5).
Retain pulley (6) and cover (7).
- Remove pulley (13) and cover (12) :



Removal/Installation of Steering Control Cable - Nose Gear Leg
Figure 401



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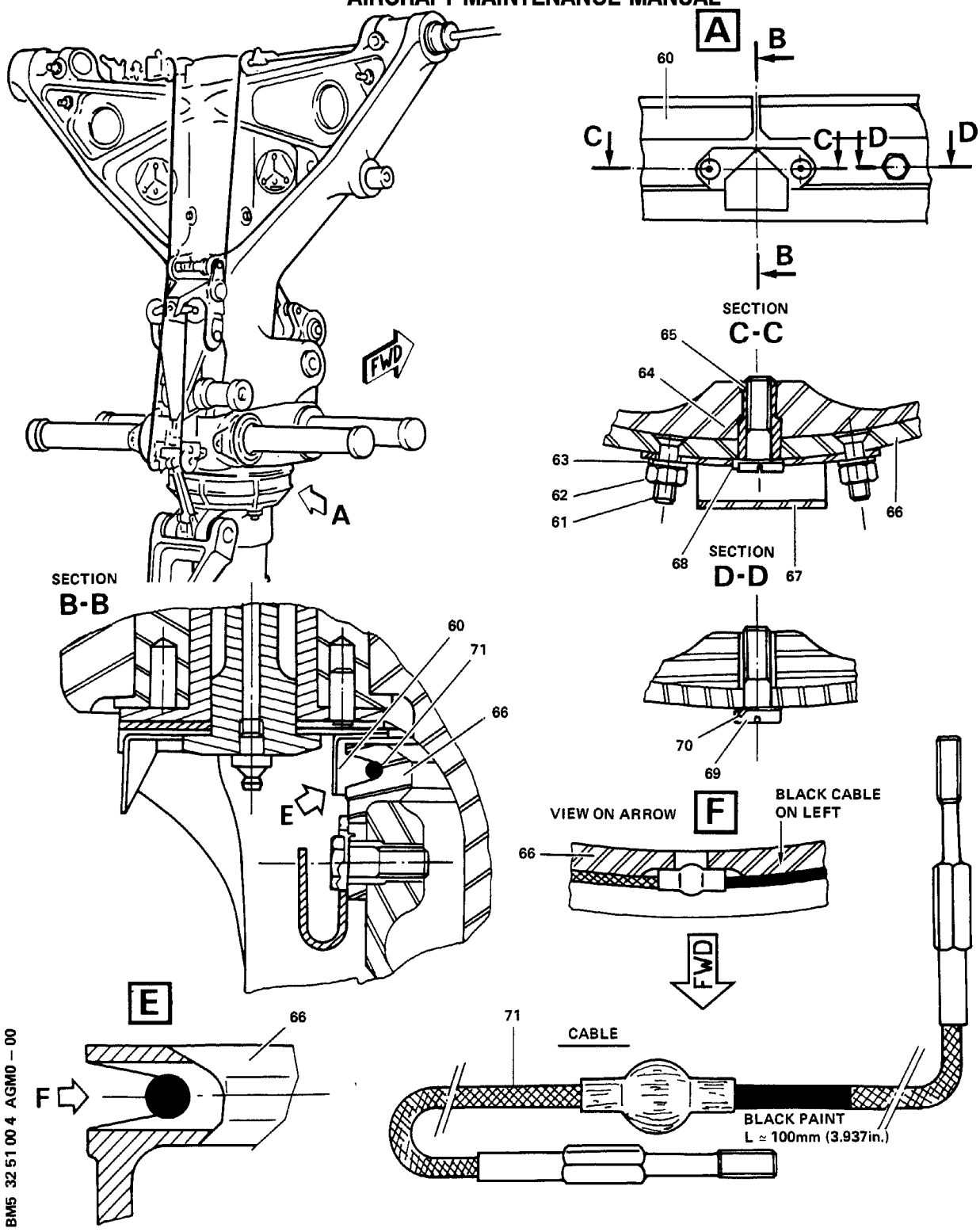
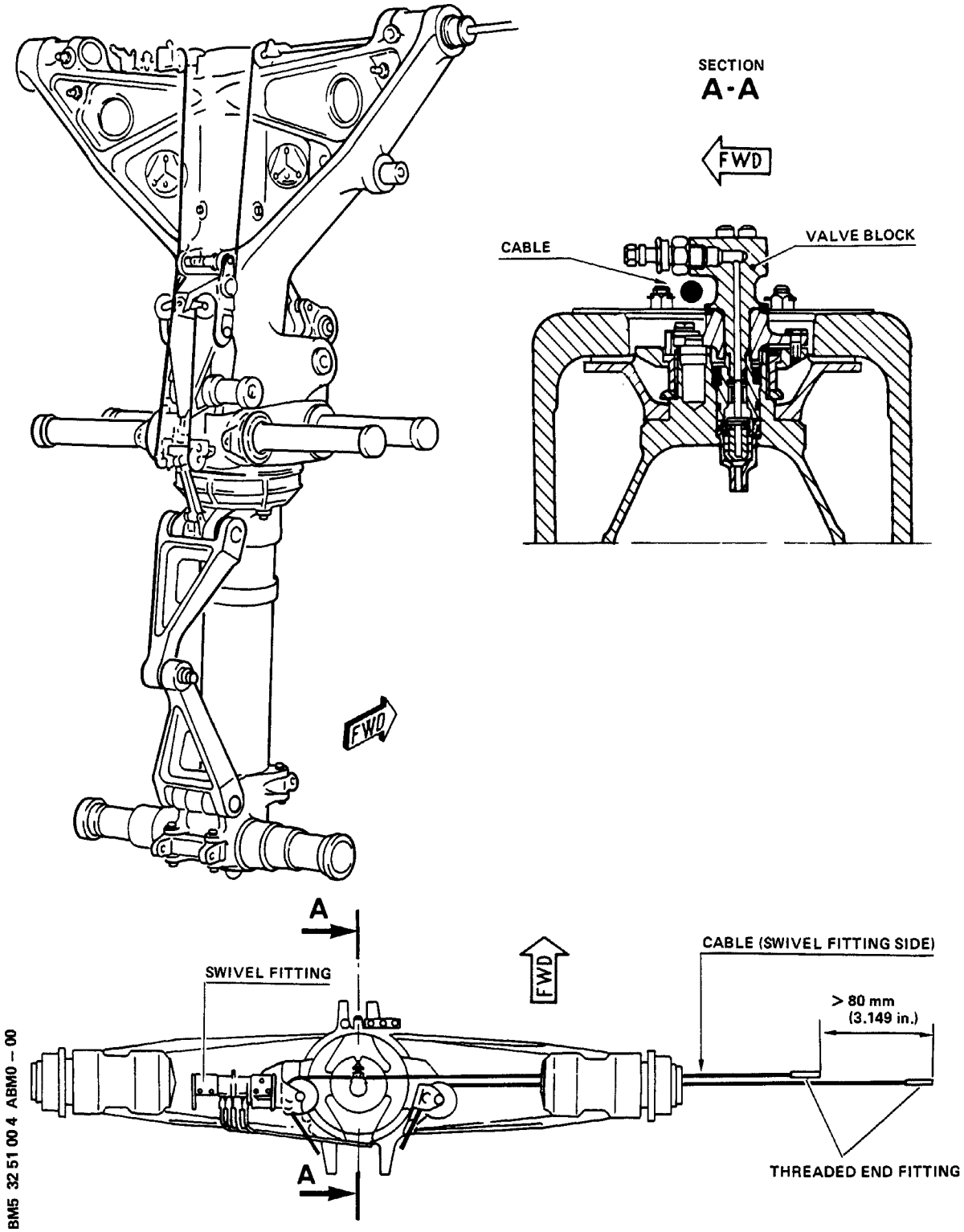
Removal/Installation of Steering Control Cable - Steering Unit
Figure 402



Removal/Installation of Steering Control Cable - Two Part Cable Guide
Figure 403



Nose Gear Steering Control Cable Routing
Figure 404

remove cotter pin (8), nut (9), washer (10) and bolt (11). Retain pulley (13) and cover (12).

6 On support (14)
- Remove pulley (19) :
Remove cotter pin (15), nut (16), washer (17) and bolt (18). Retain pulley (19).

7 Remove pulley (25) and cover (24) :
Remove cotter pin (20), nut (21), washer (22) and bolt (23). Retain pulley (25) and cover (24).
(Ref. Fig. 402)

8 On steering unit body (45)
- Remove pulleys (49) and covers (48) :
Fold back tab of lockwashers (47) and remove screws (46), covers (48) and pulleys (49).

9 On rocker (51)
- Remove covers (52) and pulleys (50) :
Fold back tab of lockwashers (53) and remove screws (54), covers (52) and pulleys (50).
(Ref. Fig. 401)

10 On shock strut lower part
On support (26)
- Remove cover (34) :
Fold back tab of lockwasher (29) and remove screw (28)
Remove cotter pin (30), nut (31), washer (32) bolt (33) and retain cover (34).
- Remove cover (41) :
Fold back tab of lockwasher (38) and remove screw (37)
Remove screw (40) and retain cover (41)
(Ref. Fig. 403)

11 On shock strut lower part
Two part cable guide
- Remove nuts (62), washers (63), indexes (67)
- Fold back tab of lockwashers (68) and remove bolts (65). Remove bushes (64) and lockwashers (68).
- Fold back tab of lockwashers (70) and remove screws (69) and retain lockwashers (70).
- Rotate cable (71) to align ball end recess in two-part cable guide (66) with one of the openings in covers (60). (Use screws (61) to facilitate rotation).
- Disengage cable ball end from recess.
- Withdraw cable through the hole between cover (60) and two-part cable guide (66).

(b)Preparation of replacement component

1 Depreserve replacement cable and make certain that it is in correct condition.

2 Clean all parts with Material No. 11-002 and dry with filtered compressed air.

3 Check removed parts for correct condition, evidence of oxidation, traces of impact and abnormal wear at pulleys. Discard all damaged pulleys.

(c)Installation (Ref. Fig. 403)

1 On shock strut lower part
- Two-part cable guide
- Position black painted cable part and install ball end in its recess.
- Insert cable in groove of two-part cable guide (66) with a flat plastic drift through the hole between cover (60) and two-part cable guide.
- Rotate cable to bring ball end recess to its initial position (aircraft centerline) and install bushes (64), lockwashers (68) and screws (65).

TORQUE screws (65) to between 0.8 and 1 m.daN (5.9 and 7.37 lbf.ft.) and safety with lockwashers.
- Install lockwashers (70) and screws (69). TORQUE screws (69) to between 0.8 and 1 m.daN (5.9 and 7.37 lbf.ft) and safety with lockwashers (Ref. Fig. 401).

2 On shock strut lower part
On support (26)
Route cable on pulleys.
- Install cover (41) :
  Install cover (41) on pulley with screw (40). TORQUE screw (40) to between 0.35 and 0.45 m.daN (2.58 and 3.31 lbf.ft.) and wirelock.
  Install lockwasher (38) and screw (37). TORQUE screw (37) to between 0.35 and 0.45 m.daN (2.58 and 3.31 lbf.ft.). Safety with lockwasher (38) and wirelock.
- Install cover (34) :
  Install cover on pulley with bolt (33), washer (32) and nut (31). TORQUE nut (31) to between 0.45 and 0.6 m.daN (3.31 and 4.12 lbf. ft.). Safety with cotter pin (30).
  Install lockwasher (29) and screw (28). TORQUE screw (28) to between 0.35 and 0.45 m.daN (2.58 and 3.31 lbf.ft.). Safety with lockwasher (29) and wirelock.

3 On steering unit (Ref. Fig. 402)
- Route cable on steering unit pulleys.
- On rocker (51) :
  Install pulleys (50), covers (52) (Locating pin), lockwashers (53) and screws (54). TORQUE screws (54) to between 0.25 and 0.3 m.daN (1.84 and 2.21 lbf.ft.).
- On body (45) :
  Install pulleys (49), covers (48) (locating pin) and lockwashers (47) and screws (46). TORQUE screws (46) to between 0.25 and 0.3 m.daN (1.84 and 2.21 lbf.ft.).
- Check that pulleys rotate freely. Safety with lockwashers (47) and (53).

4 On shock strut upper part (Ref. Fig. 401)
- Route cable on support pulleys
- On support (14) :
  Install pulley (25), cover (24) (locating pin) bolt (23), washer (22) and nut (21). TORQUE nut (21) to between 1.7 and 2 m.daN (12.5 and 14.75 lbf.ft.).
  Install pulley (19), bolt (18), washers (17) and nut (16). TORQUE nut (16) to between 1.7 and 2 m.daN (12.5 and 14.75 lbf.ft.).

- On support (1) :
  Install pulley (13), cover (12) (locating pin), bolt (11), washer (10) and nut (9). TORQUE nut (9) to between 1.7 and 2 m.daN (12.5 and 14.75 lbf.ft.).
  Install pulley (6), cover (7) (locating pin), bolt (5), washer (4) and nut (3). TORQUE nut (3) to between 1.7 and 2 m.daN (12.5 and 14.75 lbf.ft.).
- Check that pulleys rotate freely and safety with cotter pins (20), (15), (2) and (8).

5 In fuselage (Ref. Fig. 404)
- Route cable through nose gear leg-to-structure hinge pin.
  Check that cable length routed on swivel fitting side is at least 80 mm (3.149 in.) shorter than the other cable.
- Insert cables through pressure seal
- Route cables on pulleys at frame FR16A
- Install teflon cable guide on mounting plate and seal mounting plate with Material No. 09-002
- Install cable guide, mounting plate assembly with screws, and washers and wirelock screws.
- Connect cables and adjust as per paragraph 1. C. (4).

(3)Removal/installation of steering control (section in avionics compartment)

1 In zone 122 remove floor panels PF, NF, MF, LF, KF, FF. (Ref. Fig. 405)

2 Disconnect cables at turnbulckles
- Remove safety pins
- Unscrew cable turnbuckles

3 At FR14
- Disconnect cable guide

4 At FR11
Remove cable guide
- Remove nut, washer and bolt
- Remove cable guide

5 At FR10
- Remove cable guide on pulleys
- Remove cable guide

6 Between FR9 and FR10
- On pulleys :
  Remove cable guide tubes
- On reduction gear box :
  Remove cable guide

7 Remove cables from pulley on reduction gear box assembly.

(b)Preparation of replacement component

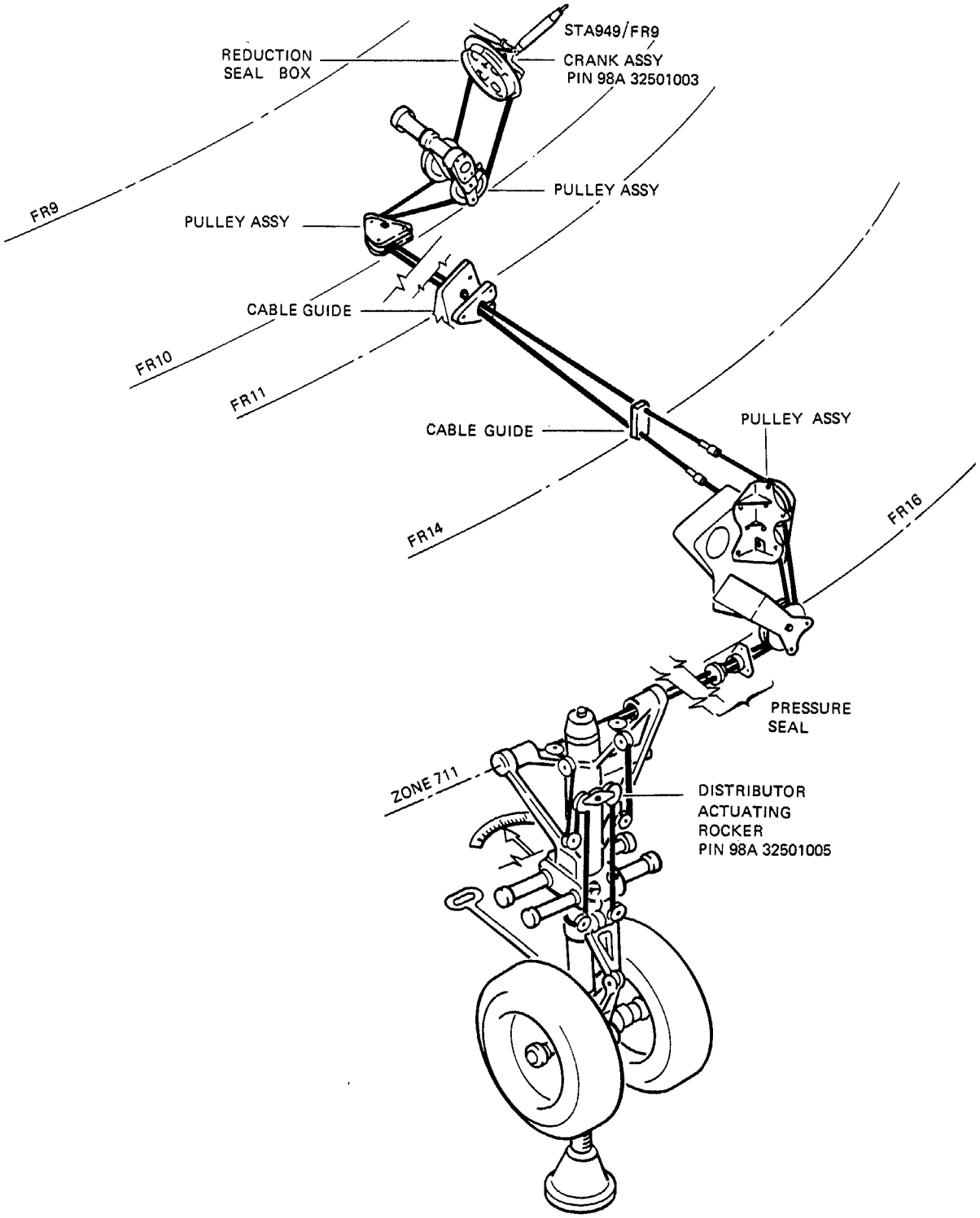
1 Depreserve replacement cables

2 Clean all parts with Material No. 11-002 and dry with filtered compressed air.

3 Check removed parts for correct condition, evidence of oxidation, traces of impact and abnormal wear at pulleys. Discard all damaged pulleys.

(c)Installation

1 Install cables on reduction gear box pulley



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Removal/Installation and Adjustment of Steering Control Cable
Figure 405

2 Route cables on pulleys between FR9 and FR15A
3 Connect cables to turnbuckles
4 Connect cables and adjust as per paragraph 1.C.(4).

(4)Adjustment of cables between distributor actuating rocker on nose gear Shock Strut and Pulley Assembly

(a)Remove safety clip and tag and close circuit breaker 1GC.

(b)On CENTER CONTROL PEDESTAL panel 9VU
- make certain that HP fuel shut off valves are in OFF position.

(c)Open, safety and tag the following circuit breakers :

PANEL	SERVICE	IDENT.	LOCATION
133VU	ENGINES/ENG 1/FUEL HP/VALVE/CTL	3KC	333/T69
133VU	ENGINES/ENG 2/FUEL HP/VALVE/CTL	4KC	333/T70

(d)On nose landing gear leg, on interphone box 3WC, place towing control lever in Normal position.

(e)Immobilize pulley assembly between FR9 and FR10 with rigging pin 98A32501003000

(f)Immobilize distributor actuating rocker with rigging pin 98A32501005000

(g)Place graduated sector on nose gear leg

(h)Make certain that nose gear wheels are in 0 position as indicated on graduated sector (wheels parallel with aircraft centerline).

(j)Connect cables with turnbuckles at FR15A. Tighten cables to the value corresponding to the ambient temperature (Ref. Fig. 406).

CAUTION : MAKE CERTAIN THAT CABLES ARE INSTALLED IN PULLEY GROOVES.

(k)Remove the two rigging pins 98A32501003000 and 98A32501005000.

(l)Compress nose gear shock absorber.

1 Deflate nose gear shock absorber (Ref. 12-12-32, P. Block 1).

2 Compress nose gear shock absorber by at least 60 mm (2.36 in.) by means of wheel changing jack.

NOTE : As an alternative procedure you can use two greased 1.2 m (4 ft) square steel plates, for this do as follows :
- position a steelplate below nose gear wheels,
R - apply a thick layer of Grease (Material No. 04-027) to the
R upper surface of the steel plate,
- put the other steel plate on top of the greased steel plate,
- lower the aircraft onto its wheels, NLG wheels on steel plates (Ref. 07-11-00, P. Block 1).

NOTE : Make certain that right main gear shock absorber is compressed by at least 20 mm (0.787 in.)

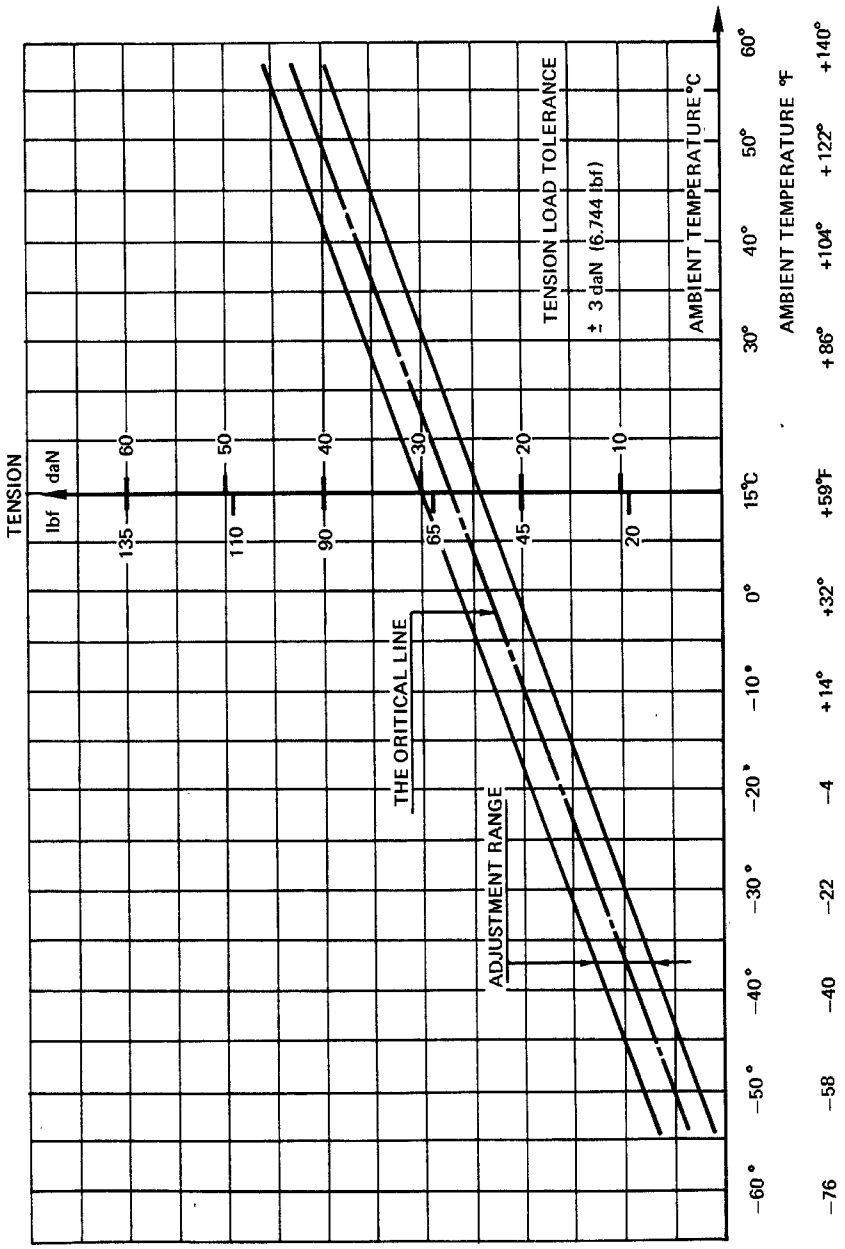
NOTE : Nose wheel steering selector valve 3GC is energized as soon as nose gear shock absorber is compressed by at least 60 mm (2.36 in.).

CAUSE : MAKE CERTAIN THAT NOSE GEAR WHEEL TRAVEL RANGE IS CLEAR AROUND THE JACK ALLOWING STEERING TO LEFT AND RIGHT.

(m)Pressurize hydraulic reservoirs (Ref. 29-14-00, P. Block 301).

(n)Pressurize Green auxiliary system using Green electric pumps (Ref. 29-21-00, P. Block 301).

(p)Close landing gear doors (Ref. 32-12-11, P. Block 301 and 32-22-11, P. Block 301).



BM5 32 51 00 4 AJM0 – 00

Nose Gear Steering Control Cable - Adjustment Graph
Figure 406

(q)Using Captain's or First Officer's nose wheel steering handwheel located in the flight compartment, carry out five complete cycles comprising Left turn and Right turn.
(r)Check maximum steering angle : nose wheel deflection 65°. Make certain that nose wheels steer to left and to right in accordance with input signal
(s)Return nose wheel steering handwheel to the 0° position.
(t)Rig crank assembly, Zone 122 STA949 (FR9) by means of rigging pin 98A32501003000
(u)Make certain that it is possible to rig the distributor actuating rocker on nose gear shock strut by means of rigging pin 98A32501005000.
(v)Make certain that nose wheels are in the 0° position on the graduated sector (non-return to zero tolerance : ± 1°).
If not, re-adjust cable turnbuckles until the pin slides freely in the distributor actuating rocker, when the wheels are returned to the 0° position.
(w)Lock and safety cable turnbuckles.
(x)Remove the two rigging pins 98A32501003000 and 98A32501005000
(y)Make certain that nose wheels move in response to action on Captain's and First Officer's rudder pedals (This operation shows whether the coupler is operating correctly).

(5)Test
Carry out a functional test of steering hydraulic system (Ref. 32-51-00, P. Block 501)

(6)Close-Up
(a)De-energize Green hydraulic system pumps (Ref. 29-21-00, P. Block 301).
(b)De-energize the aircraft electrical network and disconnect ground power unit (Ref. 24-41-00, P. Block 301).
(c)Remove safety clips and tags and close circuit breakers 3KC and 4KC.
(d)Install cable guides at FR9 and FR10, FR10-FR11-FR14 and F .
CAUTION : MAKE CERTAIN THAT CABLES ARE INSTALLED IN PULLEY GROOVES AND THAT CABLE GUIDES DO NOT IMPEDE CORRECT OPERATION OF STEERING CONTROL.
(e)Apply rubber sealant Material No. 09-001 to bolt heads.
(f)Install floor panels in zone 122.
(g)Remove safety barriers, close access doors and remove access platform.
CAUTION : MAKE CERTAIN THAT THE AREA UNDER THE AIRCRAFT IS CLEAR.
(h)If aircraft is lifted off the ground and NLG shock absorber is depressurized, do these steps :
1 Remove jack from under nose gear shock absorber.
2 Charge nose gear shock absorber (Ref. 12-12-32, P. Block 1).
3 Lower aircraft onto its wheels (Ref. 07-11-00, P. Block 1).
(j)If nose wheels are on greased plates, move aircraft to remove greased plates (Ref. 09-11-00, P. Block 1).

2. Control linkage

A. Reason for the Job

R - Removal/Installation of steering control handwheel.
R - Removal/Installation of universal joint/shaft assembly.

- Removal/Installation of reduction gear box (3).
- Removal/Installation of reduction gear box (29).
- Removal/Installation of fixed rods.
- Removal/Installation of spring rods.

B. Equipment and materials

	ITEM	DESIGNATION
	1.	Electrical Ground Power Unit - 3 Phase 115/200 V, 400 HZ, 90 KVA
	2.	Safety Barriers
	3.	Wheel Chocks
	4.	Circuit Breaker Safety Clips
	5.	Access Platform 2m-2.6m
	6.	Warning Notices
	7. 98A32501002000	Pin-Rigging, Nose Gear Wheel Steering Control
	8. 98A32501003000	Pin-Rigging, Nose Gear Wheel Steering Control
	9. 98A32501006000	Pin-Rigging, Nose Gear Wheel Steering Control
	10.C22646	Safety Pin
	11.Material No. 11-002	Cleaning Agents (Ref. 20-31-00)
	12.Material No. 09-001	Sealants (Ref. 20-31-00)
	13.Material No. 04-004	Common Greases (Ref. 20-31-00)
R	14.Material No. 04-022	Common Greases (Ref. 20-31-00)
R	15.Material No. 09-002	Sealants (Ref. 20-31-00)
	Referenced Procedures	
	- 12-12-32, P. Block 1	Landing Gear Replenishing
	- 24-41-00, P. Block 301	AC External Power Control
	- 25-11-11, P. Block 401	Captain Seat
	- 25-11-12, P. Block 401	First Officer Seat
	- 29-10-00, P. Block 301	Main Hydraulic Power - Pressurization/Depressurization
	- 29-14-00, P. Block 301	Hydraulic Reservoir Pressurizing System
	- 29-21-00, P. Block 301	Green Auxiliary Power
	- 31-00-00, P. Block 201	Indicating/Recording Systems - General
	- 32-12-11, P. Block 301	Main Gear Main Door - (Ground Door(s) Opening)
	- 32-22-11, P. Block 301	Nose Gear Main Door - (Ground Door(s) Opening)
	- 32-51-00, P. Block 501	Steering
	- 35-12-51, P. Block 401	Quick Donning, Oxygen Mask

C. Procedure

(1)Job set-up

(a)Place steering control handwheel to 0° position (handwheel index facing "0" mark).

(b)On panel 4VU

- make certain that landing gear normal control lever is in **DOWN** position and prohibit its operation by displaying a warning notice.

(c)Between First Officer's and Third Occupant's seats

- make certain that landing gear Free Fall extension control handle is in Normal position.

(d)Open, safety and tag the following circuit breaker :

PANEL	SERVICE	IDENT.	LOCATION
133VU	HYDRAULIC/NOSE/WHEEL/STRG	1GC	333/T53

(e)Position access platform.
(f)Position safety barriers prohibiting access to gear door travel ranges.
CAUTION : MAKE CERTAIN THAT DOOR TRAVEL RANGES ARE CLEAR.
(g)Open main gear doors (Ref. 32-12-11, P. Block 301) and nose gear doors (Ref. 32-22-11, P. Block 301).
WARNING : WHEN DOORS ARE OPEN MAKE CERTAIN THAT SAFETY COLLARS ARE POSITIONED ON DOOR ACTUATING CYLINDERS.
(h)Depressurize Green hydraulic reservoir (Ref. 29-14-00, P. Block 301) and prohibit its pressurization by displaying a warning notice :
- on panel 429VU to prohibit APU starting
- on reservoir pressurization connector.
(j)Depressurize Green hydraulic system (Ref. 29-10-00, P. Block 301) and prohibit its pressurization by displaying a warning notice :
- on Green hydraulic system ground connectors
- on panel 427VU to prohibit operation of Green electric pumps (ELEC PUMPS pushbutton switch).
(k)Place towing control lever in towing position and install safety pin C22646.
(l)Make certain that main gear wheels are chocked.
(m)Connect electrical ground power unit (Ref. 24-41-00, P. Block 301).
(2)Removal/Installation of steering control handwheel.

R **ON A/C 001-100, 105-200,

R Post SB 32-2100 For A/C 001-100,105-200,

(Ref. Fig. 407)

**ON A/C ALL

(Ref. Fig. 408)
(Ref. Fig. 409)
(a)Job set-up
1 Place steering control handwheel to 0° position (handwheel index facing "0" mark).
2 Immobilize reduction gear box (3) by inserting rigging pin 98A32501002000.
3 Remove Captain's seat (Ref. 25-11-11, P.Block 401) or First Officer's seat (Ref. 25-11-12, P. Block 401).
4 Remove CAPT LT/AUDIO panel 419VU (F/O LT/AUDIO panel 420VU) (Ref. 31-00-00, P. Block 201).
5 Remove quick-donning oxygen mask (Ref. 35-12-51, P. Block 401).
6 Remove screws (65) and plate (66).
7 Release fasteners (68) and remove box (67).

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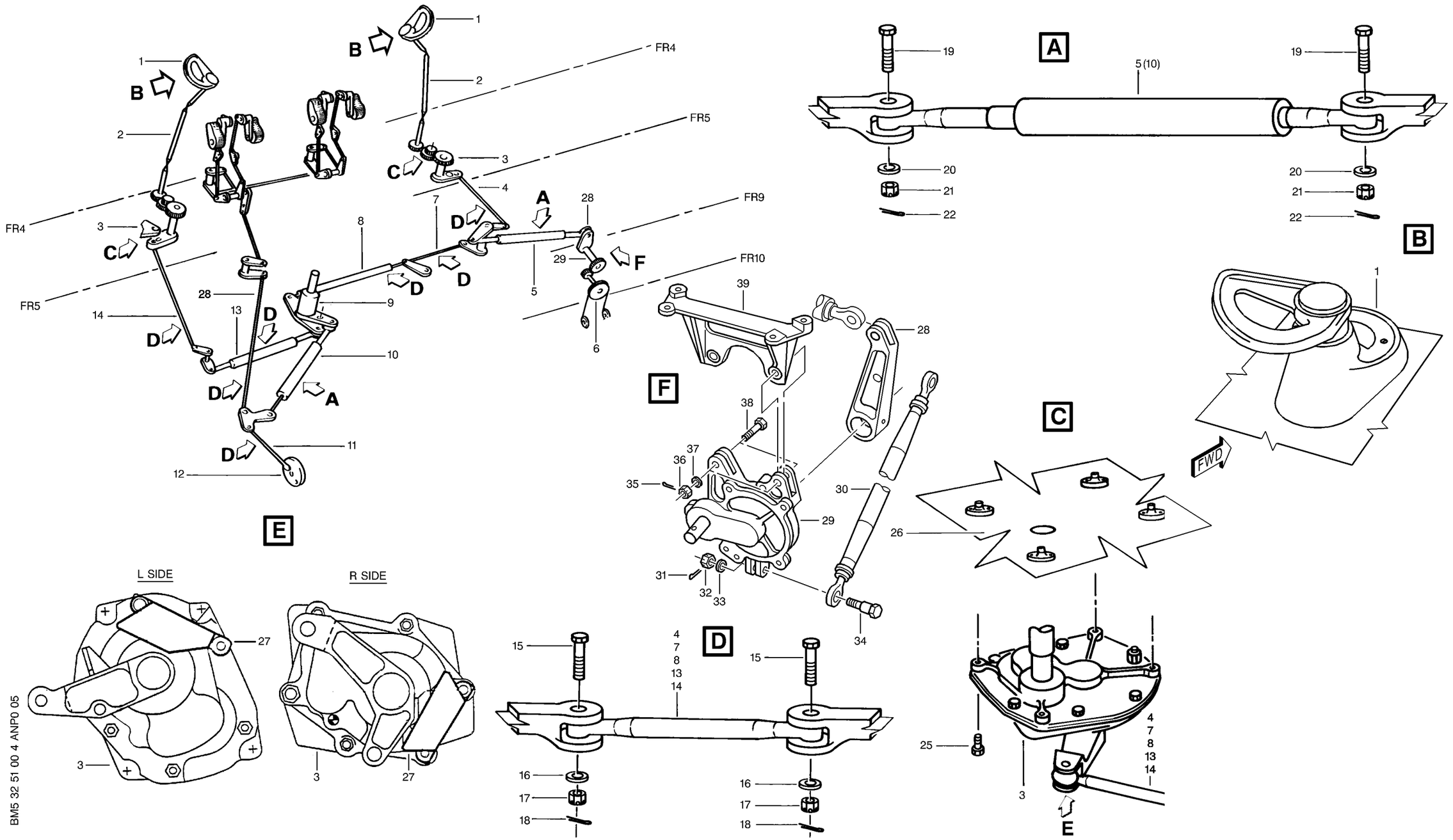
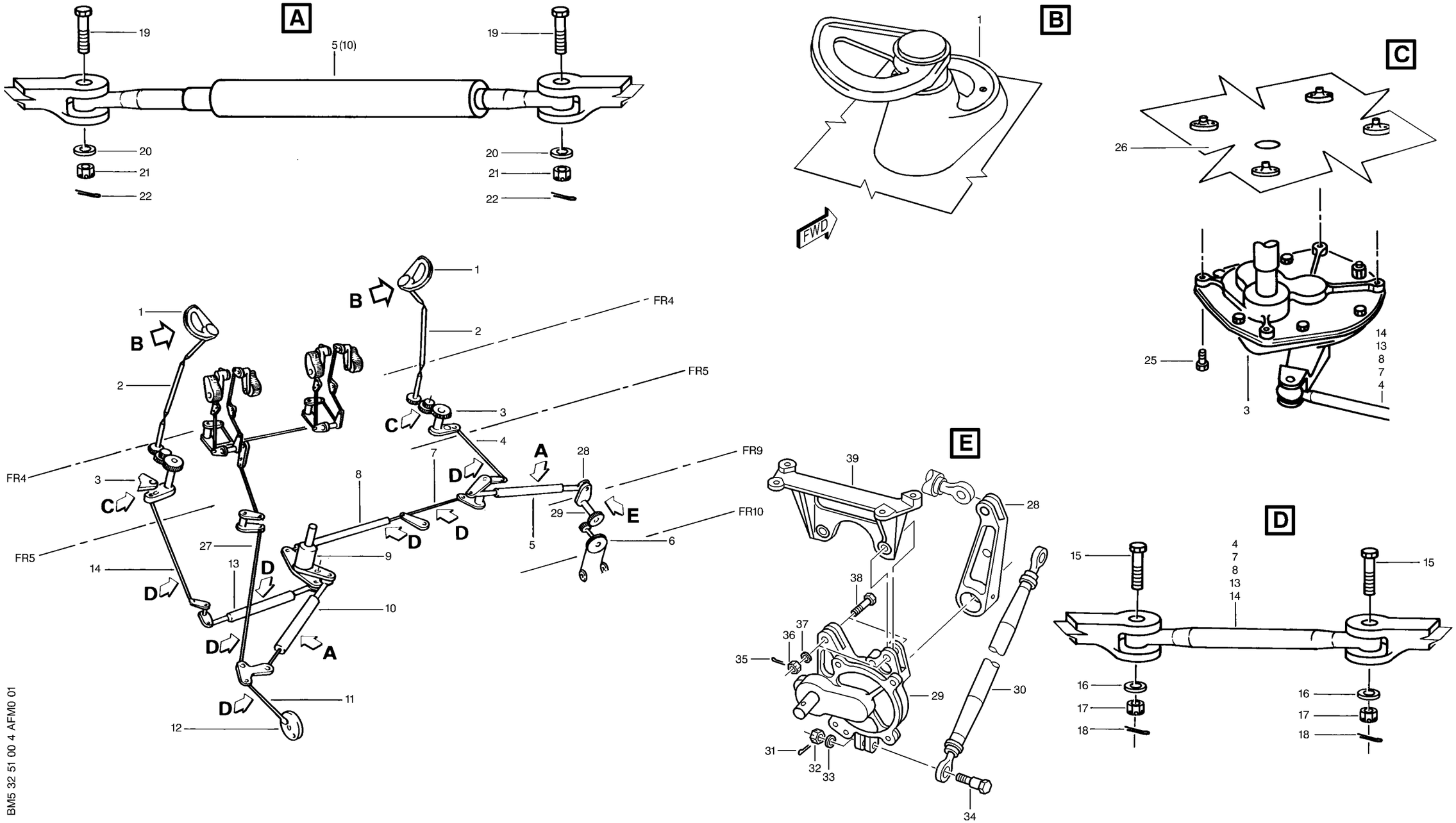


Steering Control Linkage - Removal/Installation
Figure 407



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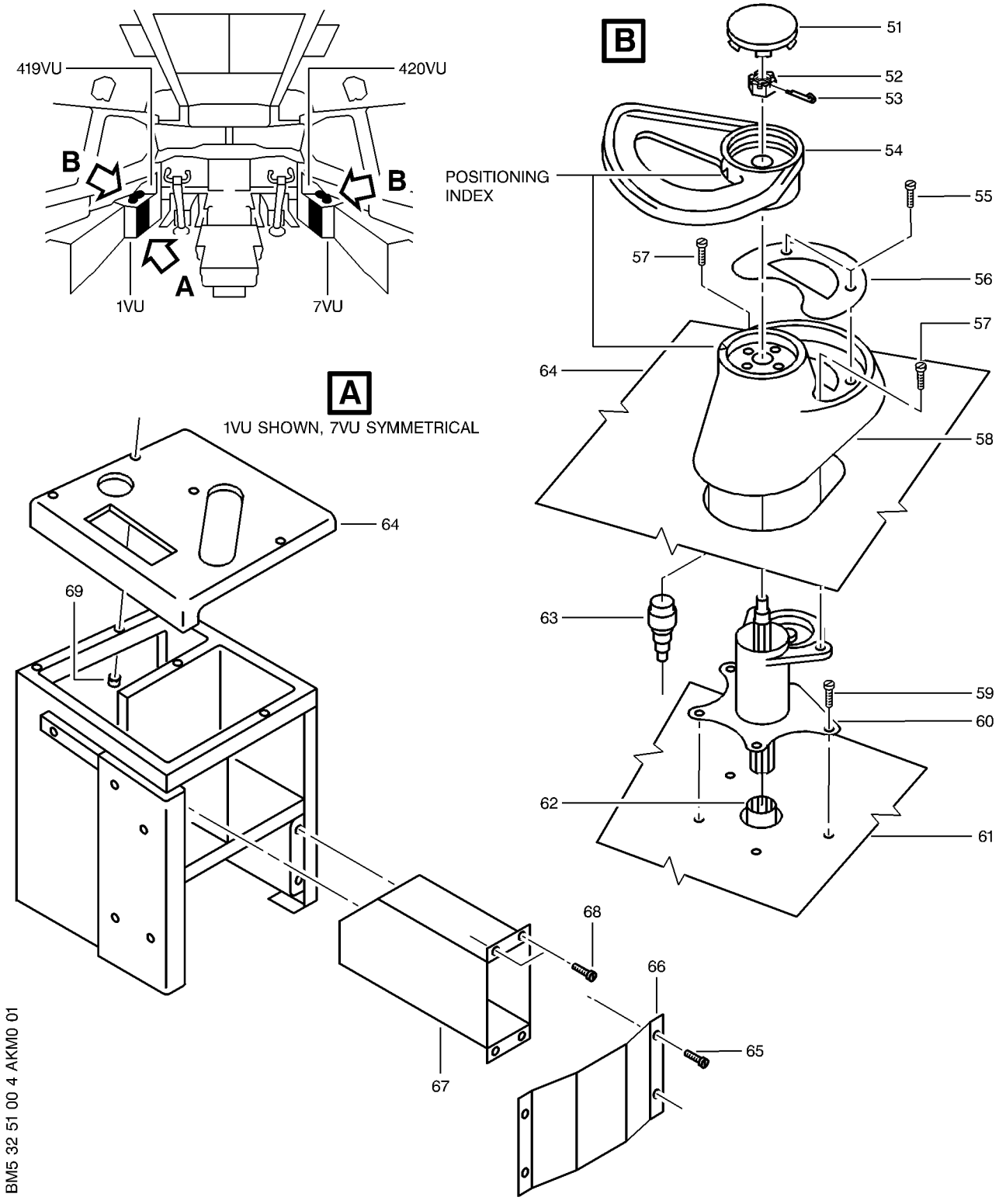
Steering Control Linkage - Removal/Installation
Figure 408

R



Steering Control Handwheel - Removal/Installation
Figure 409

R

(b)Removal
1 Remove handwheel cap (51), cotter pin (53) and nut (52).
2 Remove handwheel (54).
3 Remove screws (55) and integrally-lighted identification plate (56).
4 Remove screws (57), cover (58), and disconnect connector (63) in the same time.
5 Remove and discard nuts (69) and remove plate (64).
6 Remove the four attaching screws (59) and disengage handwheel mount assy (60) from mount (61).

(c)Preparation of replacement component.
1 Set new handwheel indicator to "0".

(d)Installation
NOTE : Do not mix Material No. 04-004 with Material No. 04-022. You can use Material No. 04-022 as an alternative to Material No. 04-004. Clean and degrease the parts before you use Material No. 04-022.
1 Position handwheel mount assy (60) on mount (61).
- Apply grease Material No. 04-004 or Material No. 04-022 to handwheel mount assy (60) splines.
- Carefully engage handwheel mount assy (60) and shaft (62) splines.
- Secure handwheel mount assy (60) on mount (61) with four screws (59).

2 Install plate (64) with new nuts (69).
3 Tighten nuts (69) progressively.
4 Connect connector (63), install cover (58) with screws (57) on handwheel mount assy (60) and tighten.
5 Install integrally-lighted identification plate (56) and secure it with screws (55).
R CAUTION : BEFORE YOU ENGAGE THE HANDWHEEL ON THE DRIVE SHAFT,
R CHECK THAT THE HANDWHEEL POSITIONING INDEX AND THE NOTCH
R OF THE COVER ARE ALIGNED.
6 Install handwheel (54), nut (52) and safety with cotter pin (53).
7 Install handwheel cap (51).
8 Put box (67) in position and safety it with fasteners (68).
9 Install plate (66) with screws (65). Tighten screws (65).
10 Install quick-donning oxygen mask (Ref. 35-12-51, P. Block 401).
11 Install CAPT LT/AUDIO panel 419VU (F/O LT/AUDIO panel 420VU) (Ref. 31-00-00, P. Block 201).
12 Install Captain's seat (Ref. 25-11-11, P. Block 401) or First Officer's seat (Ref. 25-11-12, P. Block 401).
13 Remove rigging pin 98A32501002000.

**ON A/C 001-100, 105-200,

Post SB 32-2100 For A/C 001-100,105-200,

(3)Removal/Installation of universal joint/shaft assembly (2)
(Ref. Fig. 407)

**ON A/C ALL

(3)Removal/Installation of universal joint/shaft assembly (2)
(Ref. Fig. 408)

(a)Job set-up
Remove steering control handwheel (1) (Ref. paragraph (2) (a)).
(b)Removal
Remove universal joint/shaft assembly (2).
(c)Installation
1 Position universal joint/shaft assembly (2) on reduction gear box (3) output shaft.
2 Install handwheel (Ref. paragraph (2) (d)).
3 Remove rigging pin 98A32501002000.

**ON A/C 001-100, 105-200,

Post SB 32-2100 For A/C 001-100,105-200,

(4)Removal/Installation of reduction gear box (3) (Ref. Fig. 407).

**ON A/C ALL

(4)Removal/Installation of reduction gear box (3) (Ref. Fig. 408).
(a)Job set-up
1 Place steering control handwheel to 0° position (handwheel index facing "0" mark).
2 Immobilize coupler (9) with rigging pin 98A32501006000.
(b)Removal
1 Remove fixed rod (4) or (14) associated with reduction gear box (3) concerned. Remove cotter pins (18), nuts (17), washers (16) and bolts (15).
2 Cut and remove lockwire and remove the four bolts (25).
3 Remove reduction gear box (3) from mount (26). Retain universal joint/shaft assembly (2) or temporarily attach free end so that the other end remains engaged in handwheel (1)
(c)Preparation of replacement component. Rig reduction gear box to be installed in neutral position with rigging pin 98A32501002000.
(d)Installation
1 Install universal joint/shaft assembly (2) on handwheel (1) and hold in position during installation of reduction gear box (3).
2 Position reduction gear box (3) on mount (26). Carefully line up splines of universal joint/shaft assembly and reduction gear box (3) output shaft.
3 Install the four bolts (25) and safety with lockwire.
4 Install fixed rod with bolts (15), washers (16), nuts (17) and cotter pins.

5 Remove rigging pins 98A32501002000 and 98A32501006000.

**ON A/C 001-100, 105-200,

Post SB 32-2100 For A/C 001-100,105-200,

(a)Job set-up
1 Place steering control handwheel to 0° position (handwheel index facing "0" mark).
2 Immobilize coupler (9) with rigging pin 98A32501006000.
(b)Removal
1 Remove fixed rod (4) or (14) associated with reduction gear box (3) concerned. Remove cotter pins (18), nuts (17), washers (16) and bolts (15).
NOTE : Mark position of foolproofing device (27).
2 Cut and remove lockwire and remove the four bolts (25).
3 Remove reduction gear box (3) from mount (26). Retain universal joint/shaft assembly (2) or temporarily attach free end so that the other end remains engaged in handwheel (1)
(c)Preparation of replacement component. Rig reduction gear box to be installed in neutral position with rigging pin 98A32501002000.
(d)Installation
1 Install universal joint/shaft assembly (2) on handwheel (1) and hold in position during installation of reduction gear box (3).
2 Position reduction gear box (3) on mount (26). Carefully line up splines of universal joint/shaft assembly and reduction gear box (3) output shaft.
NOTE : Install foolproofing device (27) in position marked during removal.
3 Install the four bolts (25) and safety with lockwire.
4 Install fixed rod with bolts (15), washers (16), nuts (17) and cotter pins.
5 Remove rigging pins 98A32501002000 and 98A32501006000.

**ON A/C 001-100, 105-200,

Post SB 32-2100 For A/C 001-100,105-200,

(5)Removal/Installation of reduction gear box (29) (Ref. Fig. 407).

**ON A/C ALL

(5)Removal/Installation of reduction gear box (29) (Ref. Fig. 408).
(a)Job set-up
1 Place steering control handwheel to 0° position (handwheel index facing "0" mark).
2 Immobilize coupler (9) with rigging pin 98A32501006000.
3 Immobilize cable quadrant (6) with rigging pin 98A32501002000.
4 Remove cables from pulley on reduction gear box assembly (29)

as per paragraph 1.C.(2).

(b)Removal

1 Disconnection of rod (5) from bellcrank (28) :
- remove cotter pin (22), nut (21), washer (20) and bolt (19),
- disconnect rod (5).

2 Disconnection of rod (30) from reduction gear box (29) :
- remove cotter pin (31), nut (32), washer (33) and bolt (34).

3 Removal of reduction gear box (29) :
- remove cotter pins (35), nuts (36), washers (37) and bolts (38),
- remove reduction gear box (29) from bracket assy (39).

(c)Installation

1 Installation of reduction gear box (29) :
- position reduction gear box (29) on bracket assy (39),
- install bolts (38), washers (37), nuts (36) and cotter pins (35).

2 Connection of rod (30) on reduction gear box (29) :
- install rod (30) with bolt (34), washer (33), nut (32) and cotter pin (31).

3 Connection of rod (5) :
- position rod (5) and bolt (19).
When rod is installed make certain it is in neutral position.
If not, adjust the length of spring rod until bolt (19) slides freely,
- install bolt (19), washer (20), nut (21) and cotter pin (22).

4 Install cables on pulley as per paragraph 1.C.(2).

5 Adjust cables as per paragraph 1.C.(4).

**ON A/C 001-100, 105-200,

Post SB 32-2100 For A/C 001-100,105-200,

(6)Removal/Installation of fixed rods (4), (7), (8), (13), (14)
(Ref. Fig. 407)

**ON A/C ALL

(6)Removal/Installation of fixed rods (4), (7), (8), (13), (14)
(Ref. Fig. 408)

(a)Job set-up

1 Place steering control handwheel to 0° position (handwheel index facing "0" mark).

2 Immobilize reduction gear box (3) with rigging pin 98A32501002000.

3 Immobilize coupler (9) with rigging pin 98A32501006000.

(b)Removal

1 Remove cotter pins (18), nuts (17), washers (16) and bolts (15).

2 Remove rod.

(c)Installation

1 Install rod.
NOTE : If adjustable rod (8), (13) is to be installed, adjust rod length.
2 Install bolts (15), washers (16), nuts (17) and safety with cotter pins. Apply Material No. 04-004 (Ref. 20-31-00).
3 Remove rigging pins 98A32501002000 and 98A32501006000.

**ON A/C 001-100, 105-200,

Post SB 32-2100 For A/C 001-100,105-200,

(7)Removal/Installation of spring rods (5), (10)
(Ref. Fig. 407)

**ON A/C ALL

(7)Removal/Installation of spring rods (5), (10)
(Ref. Fig. 408)

(a)Job set-up
1 Place steering control handwheel to 0° position (handwheel index facing "0" mark).
2 Immobilize coupler (9) with rigging pin 98A32501006000.
3 Immobilize cable quadrant (6) with rigging pin 98A32501002000 for removal/installation of rod (5).
4 Immobilize cable quadrant (12) with rigging pin 98A32501003000 for removal/installation of rod (10).
(b)Removal
1 Removal of rod (5)
- Remove cotter pins (18), nuts (17), washers (16) and bolts (15) (bellcrank side).
- Disconnect rods (4) and (7).
- Rotate bellcrank to disengage bolt (19).
- Remove cotter pins (22), nuts (21), washers (20) and bolts (19).
- Remove rod (5).
2 Removal of rod (10)
- Remove cotter pins (18), nuts (17), washer (16) and bolt (15) (bellcranck side).
- Disconnect rods (11) and (27).
- Rotate bellcranck to disengage bolt (19).
- Remove cotter pins (22) nuts (21) washers (20) and bolt (19).
- Remove rod (10).
(c)Installation
1 Installation of rod (5)
- Position rod and bolts (19).
When rod is installed make certain that it is in neutral position (neither compressed nor extended). If not, adjust the length of spring rod until the two bolts (19) slide freely.

- Install bolts (19), washers (20), nuts (21) and safety with cotter pins (22).
- Connect rods (4) and (7).
- Install cotter pins (18), nuts (17), washers (16) and bolts (15).

2 Installation of rod (10)

- Position rod (10) and bolts (19).
  When rod is installed make certain that it is in neutral position (neither compressed nor extended). If not, adjust the length of spring rod until the two bolts (19) slide freely.
- Install bolts (19) washers (20), nuts (21) and safety with cotter pins (22).
- Connect rods (11) and (27).
- Install bolts (15) washer (16), nuts (17) and safety with cotter pin.
- Remove rigging pins 98A32501002000, 98A32501006000 and 98A32501003000.

(8)Test

Carry out a functional test of steering hydraulic system (Ref. 32-51-00, P. Block 501).

(9)Close-up

(a)Pressurize hydraulic system (Ref. 29-14-00, P. Block 501).

(b)Remove safety clip and tag and close circuit breaker 1GC.

(c)Remove safety pin C22646 and place towing control lever in Normal position.

WARNING : MAKE CERTAIN THAT DOOR TRAVEL RANGES ARE CLEAR.

(d)Close main gear doors (Ref. 32-12-11, P. Block 301) and nose gear doors (Ref. 32-22-11, P. Block 301).

(e)Check fluid level in hydraulic reservoirs, top up if required (Ref. 12-12-29, P. Block 1).

(f)Disconnect electrical ground power unit (Ref. 24-41-00, P. Block 301).

(g)Remove warning notice.

(h)Remove safety barriers, close access doors and remove access platform.

(j)Remove all ground handling and maintenance equipment, standard and special tools together with ground power and replenishing equipment all access equipment and miscellaneous items.

1. Adjustment of Steering Control

WARNING : CHECK THAT THE LANDING GEAR GROUND SAFETIES INCLUDING WHEEL CHOCKS ARE IN POSITION.

BEFORE APPLYING OR RELIEVING HYDRAULIC SYSTEM PRESSURE, MAKE CERTAIN THAT THE TRAVEL RANGES OF THE CONTROL SURFACES ARE CLEAR.

BEFORE PRESSURIZING HYDRAULIC SYSTEMS, CHECK THAT ALL CONTROLS ARE SET TO CORRESPOND WITH THE ACTUAL POSITION OF THE SERVICES THEY OPERATE.

BEFORE POWER IS SUPPLIED TO THE AIRCRAFT MAKE CERTAIN THAT ELECTRICAL CIRCUITS UPON WHICH WORK IS IN PROGRESS ARE ISOLATED.

BEFORE PRESSURIZING HYDRAULIC SYSTEMS, MAKE CERTAIN THAT HYDRAULIC SYSTEM UNDER MAINTENANCE HAS BEEN ISOLATED.

A. Reason for the Job

(1)Adjustment of nose wheel steering control

B. Equipment and Materials

	ITEM	DESIGNATION
	(1)	Cart - Ground Power Supply and Preliminary Testing 150 l/min. (39.6 US GPM) Hydraulic
	(2)	Shock Absorber Charging Equipment
	(3)	Square Steel Plates 1.2 m (4 ft)
R	(4)	Measurement Shim Set
R	(5)99A32501010000	Device - Testing and Adjustment, Nose Gear Wheel Steering Control
R	(6)98A32501002000	Pin - Rigging, Wheel Steering Control
R	(7)98A32501006000	Pin - Rigging, Wheel Steering Control
R	(8)98A27901002000	Pin - Rigging, Rudder Control
R	(9)98A32501003000	Pin - Rigging, Nose Gear Wheel Steering Control
R	10)98A32501005000	Pin - Rigging, Wheel Steering Control
R	11)Material No. 04-027	Common Greases (Ref. 20-31-00)
	Referenced Procedures	
	- 07-11-00, P. Block 1	Jacking for Aircraft Maintenance Operations
	- 07-12-00, P. Block 1	Lifting for Wheel Change
	- 09-11-00, P. Block 1	Towing
	- 12-12-32, P. Block 1	Landing Gear Replenishing
	- 24-41-00, P. Block 301	AC External Power Control
	- 29-10-00, P. Block 301	Main Hydraulic Power - Pressurization/ Depressurization
	- 29-14-00, P. Block 301	Hydraulic Reservoir Pressurizing System
	- 29-21-00, P. Block 301	Green Auxiliary Power

C. Procedure

(1)Job set-up

(a)Jack up aircraft until nose wheels are clear of ground (Ref. 07-11-00, P. Block 1).

NOTE : Main gear shock absorbers compressed.

(b)On panel 4VU

- make certain that landing gear Normal control lever is in DOWN position and prohibit its operation by displaying a warning notice.

(c)Between the First Officer's and Third Occupant's seats

- make certain that landing gear Free Fall extension control handle is in Normal position.

(d)Depressurize Green hydraulic system (Ref. 29-10-00, P. Block 301) and prohibit its pressurization by displaying a warning notice :

- on Green hydraulic system ground connectors
- on panel 427VU to prohibit operation of Green electric pumps (ELEC PUMPS pushbutton switch)

(e)Make certain that the following circuit breaker is closed

PANEL	SERVICE	IDENT.	LOCATION
133VU	HYDRAULIC/NOSE/WHEEL/STRG	1GC	333/T53

(f)Install testing and adjustment device 99A32501010000 on nose gear leg.

(g)Energize the aircraft electrical network (Ref. 24-41-00, P. Block 301). Make certain that electronics racks ventilation system is correct.

(h)On interphone box 3WC located on nose gear leg, Zone 711, make certain that lever is in normal position.

(j)Position access platform

(k)On mechanical center pedestal 9VU

- make certain that HP fuel shut off valve control levers are in OFF position

(l)Open, safety and tag the following circuit breakers :

PANEL	SERVICE	IDENT.	LOCATION
133VU	ENGINES/ENG1/FUEL HP VALVE/CTL	3KC	333/T69
133VU	ENGINES/ENG2/FUEL HP VALVE/CTL	4KC	333/T70

D. Adjustment

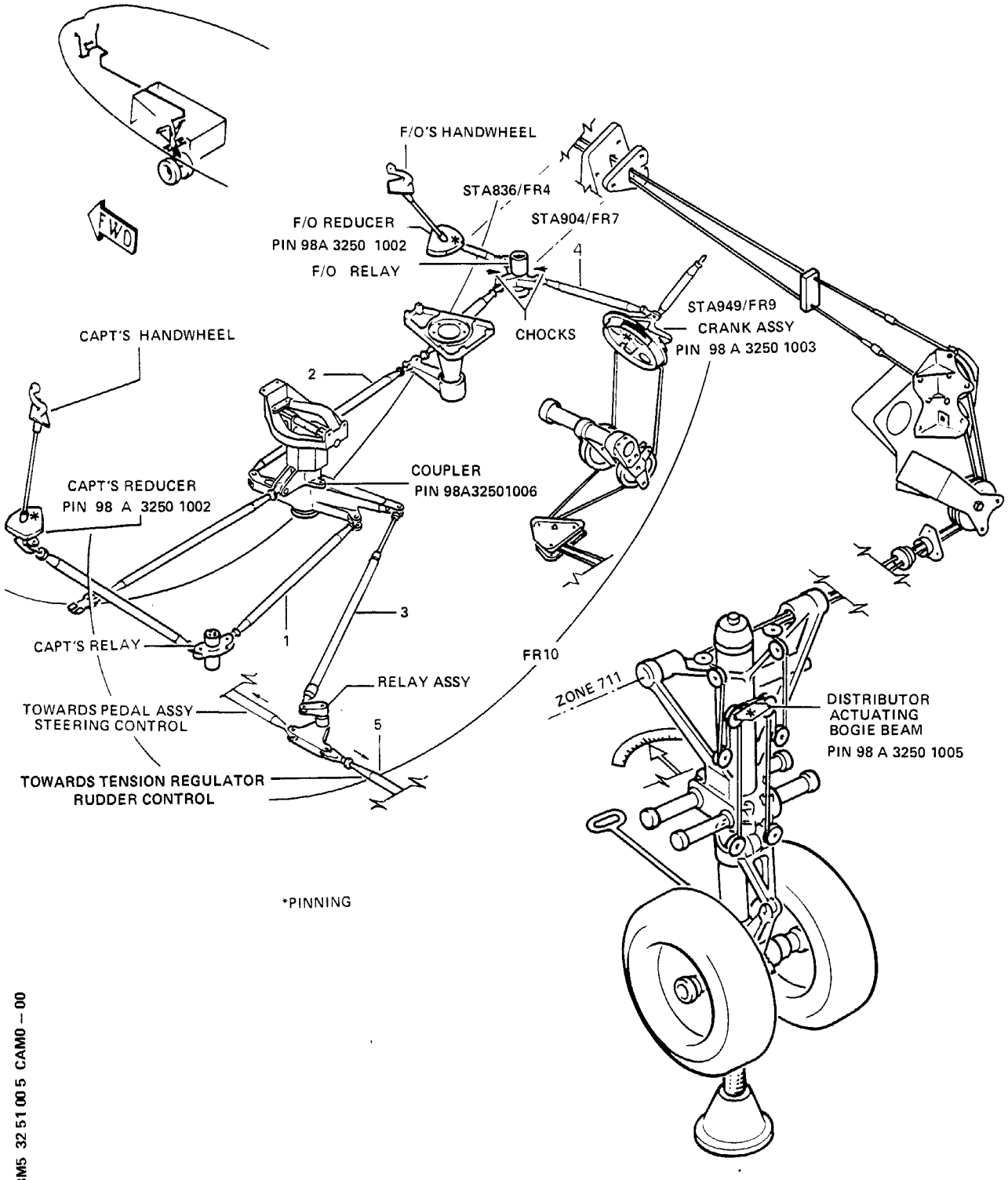
(1)Adjustment of nose wheel steering control, Zone 121-122 (Ref. Fig. 501)

(a)Adjustment of the rigid control between reduction (step-down) gear boxes STA836(FR4) and coupler STA904(FR7).

1 Rig Captain reduction (step-down) gear box and First Officer reduction (step-down) gear box by means of rigging pin 98A32501002000.

2 Make certain that the nose gear position pointers in the flight compartment on Captain's side and First Officer's side, face index 0° and that each handwheel pointer faces the index on the casing.

3 Make certain that it is possible to rig the coupler with rigging pin 98A32501006000. If not, adjust the length of the two adjustable rods (1 and 2) until rigging pin can be readily inserted in coupler.



Adjustment of Nose Gear Steering Control
Figure 501

4 Lock and safety hinge fittings on rods (1) and (2).
5 Remove the two rigging pins 98A32501002000

(b)Adjust spring rod (3) between coupler STA904(FR7) and rudder control tension regulator STA1043(FR11a)

1 Rig the rudder control tension regulator by means of rigging pin 98A27901002000.
2 Release the two attachment pins of spring rod (3) to make certain that spring rod is in neutral position (neither extended nor compressed). If not, adjust the length of the rod until the two pins slide freely.
3 Lock and safety attachment pins and spring rod (3) end fittings.
4 Remove the two rigging pins 98A32501006000 and 98A27901002000

(c)Adjustment of spring rod (4) between coupler STA904(FR7) and crank assembly STA949(FR9).

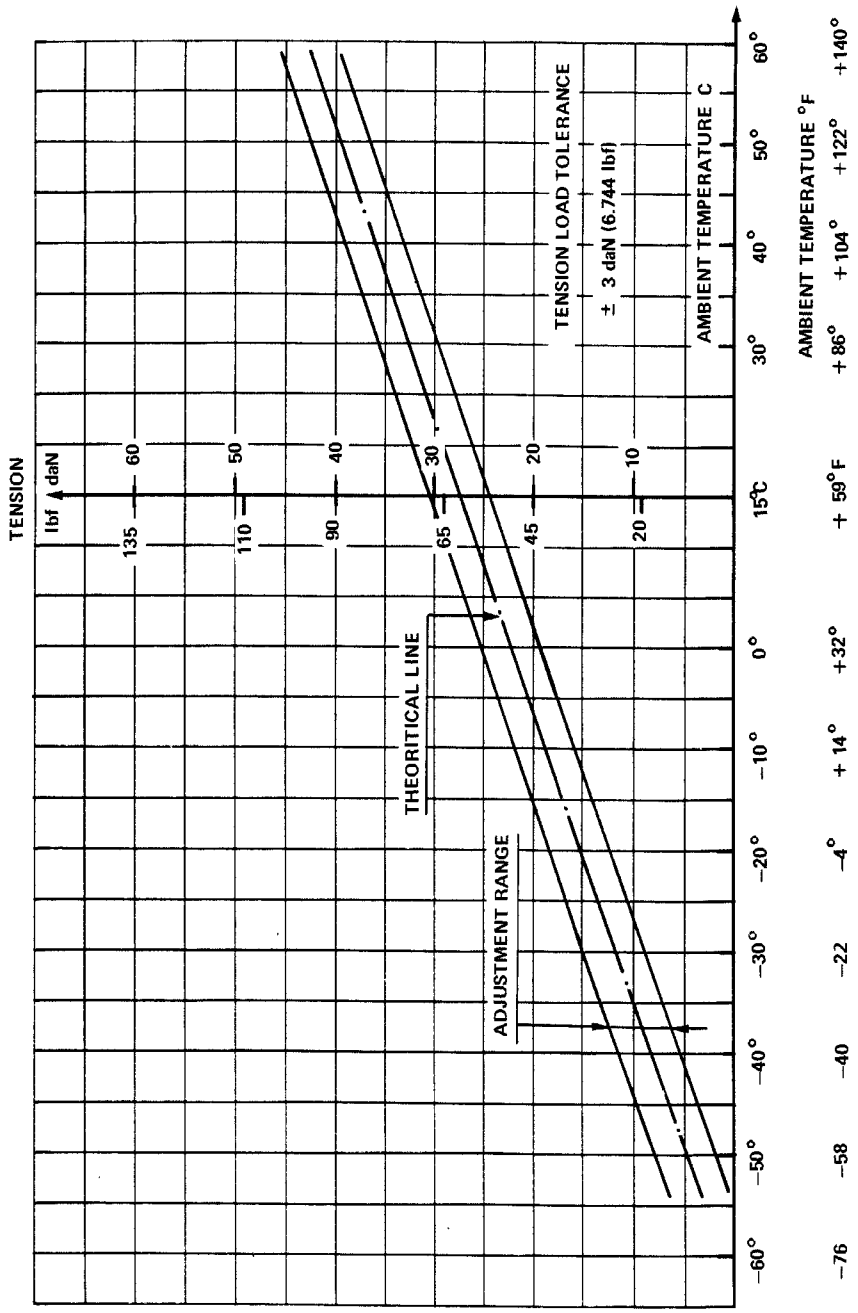
1 Rig crank assembly by means of rigging pin 98A32501003000
2 Rig coupler by means of rigging pin 98A32501006000
3 Release the two attachment pins of spring rod (4) to make certain that spring rod is in neutral position (neither extended nor compressed). If not, adjust the length of spring rod until the two pins slide freely.
4 Lock and safety attachment pins and spring rod (4) end fittings.
5 Remove the two rigging pins 98A32501006000 and 98A32501003000

(d)Adjustment of cables between steering system valve actuating rocker on nose gear housing and crank assembly STA949(FR9).
(Ref. Fig. 502)

NOTE : Make certain that right main gear shock absorber is compressed by at least 20 mm (0.787 in.).

1 Make certain that nose wheels are in the 0° position at the landing gear graduated sector (wheels parallel with aircraft center-line).
2 Rig crank assembly by means of rigging pin 98A32501003000
3 Make certain that it is possible to rig the steering system valve actuating rocker by means of rigging pin 98A32501005000
adjust cable turnbuckles STA1236(FR15A) until the rigging pin slides easily in the rocker.
4 Adjust cable tension in accordance with the ambient temperature. The tension versus temperature is shown on graph.
(Ref. Fig. 502)
5 Lock and safety cable turnbuckles.
6 Remove the two rigging pins 98A32501003000 and 98A32501005000
7 Compress nose gear shock absorber :
- deflate nose gear shock absorber (Ref. 12-12-32, P. Block 1).
- compress nose gear shock absorber by at least 60 mm (2.36 in.) by means of wheel changing jack.

NOTE : As an alternative procedure you can use two greased 1.2 m (4 ft) square steel plates, for this do as follows :
- position a steel plate below nose gear wheels.
- apply a thick layer of Grease (Material No. 04-027) to the upper surface of the steel plate.
- put the other steel plate on top of the greased steel plate.
- lower the aircraft onto its wheels, NLG wheels on steel



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Nose Gear Wheel Steering Control Cable Adjustment Graph
Figure 502

plates (Ref. 07-11-00, P. Block 1).

NOTE : Nose wheel steering selector valve 3GC is energized as soon as nose gear shock absorber is compressed by at least 60 mm (2.36 in.).

CAUTION : MAKE CERTAIN THAT NOSE GEAR WHEEL TRAVEL RANGE IS CLEAR AROUND THE JACK ALLOWING STEERING TO THE LEFT AND RIGHT.

8 Make certain that Green hydraulic reservoir is pressurized. Pressurize if necessary (Ref. 29-14-00, P. Block 301).

9 Pressurize Green hydraulic system (Ref. 29-10-00, P. Block 301) or (Ref. 29-21-00, P. Block 301).

10 Using Captain's or First Officer's nose wheel steering handwheel located in the flight compartment carry out 5 complete cycles comprising turn to left and right.
Return the wheel to the 0° position (this is necessary to bleed the hydraulic system and stabilize cable linkage).

11 Rig crank assembly, Zone 121-122 STA949(FR9) by means of rigging pin 98A32501003000

12 Make certain that it is possible to rig the steering system valve actuating rocker on nose gear housing by means of rigging pin 98A32501005000.

13 Make certain that nose wheels are in the 0° position on the graduated sector (non-return to zero tolerance : ± 1°20').
If not, re-adjust cable turnbuckles until the pin slides freely in the steering system valve actuating rocker, when the wheels are returned to the 0° position.
Lock and safety cable turnbuckles.

14 Remove the two rigging pins 98A32501003000 and 98A32501005000

15 Make certain that nose wheels move in response to action on Captain's and Officer's rudder pedals (This operation shows whether the coupler operates).

(e)Left turn stop adjustment

NOTE : Make certain that nose gear shock absorber is compressed by at least 60 mm (2.362 in.) and right main gear shock absorber by at least 20 mm (0.787 in.).
- as all conditions are met. The nose wheel steering selector valve 3GC is energized.

1 Make certain that Green hydraulic reservoir is pressurized. Pressurize if necessary (Ref. 29-14-00, P. Block 301).

2 Pressurize Green hydraulic system (Ref. 29-10-00, P. Block 301) or (Ref. 29-21-00, P. Block 301).

3 Turn Captain's or First Officer's steering handwheel to the left to obtain a nose wheel deflection of 65° ±1° to left (left turn).
Make certain that this value matches reading on indicator under the flight compartment handwheel and the graduated sector installed on the nose gear.

4 With wheels deflected 65° ±1° to left adjust the left turn stop on First Officer crank.

R - During this operation, make certain that spring rod (3) length has varied and that it is at all times possible to rig steering control tension regulator by means of rigging pin No.98A27901002.

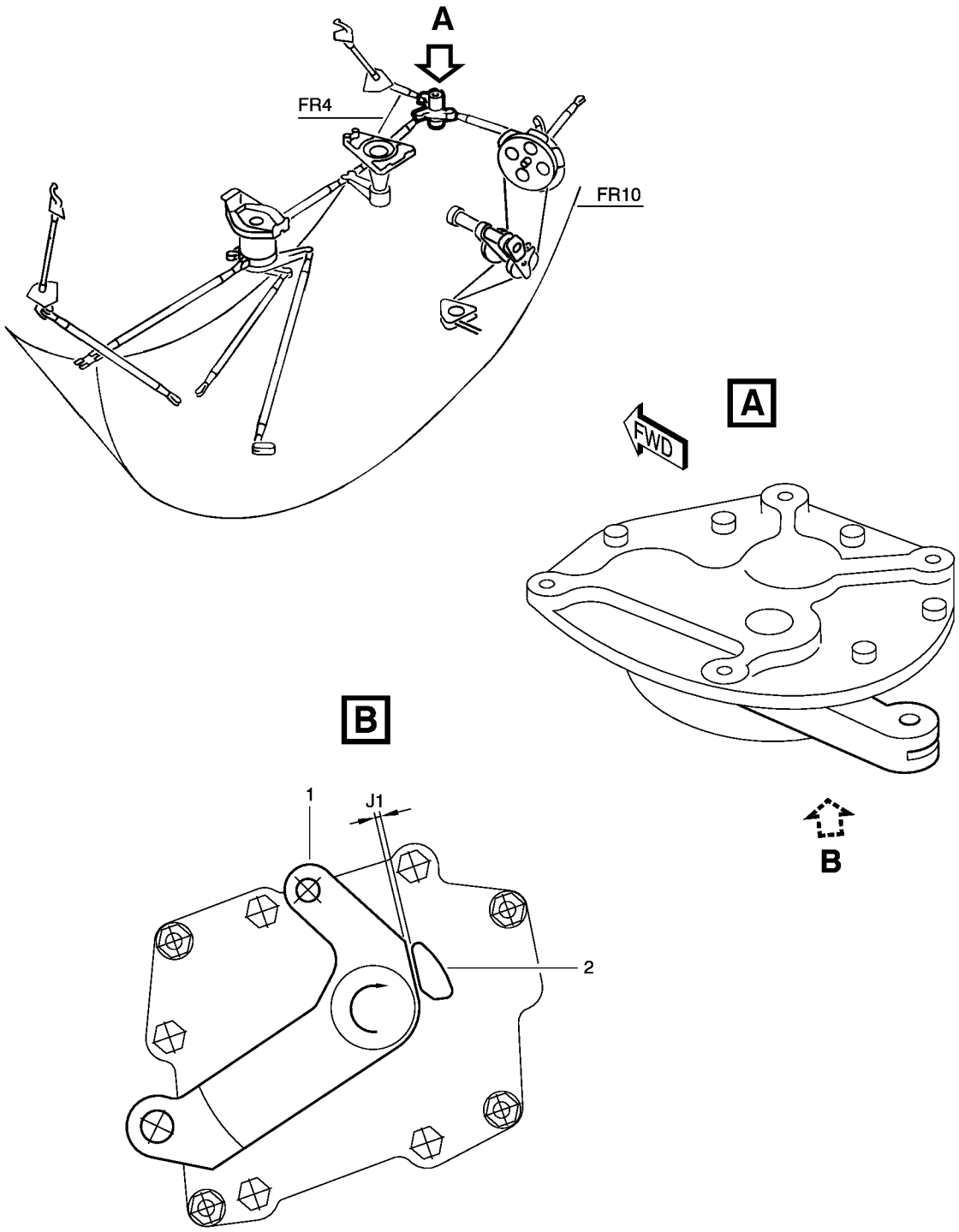
R - On steering reduction gearbox, use measurement shim to measure gap

R between bellcrank (1) and fool-proofing device (2).
R (Ref. Fig. 503). Make sure that J1 is approximately 0.6 mm
R (0.02 in.). If not, adjust steering control. Do turn stop adjustment
R again until gap is correct.

R (Ref. Fig. 503)
(f)Adjustment of the right turn stop.
NOTE : MAKE CERTAIN THAT NOSE GEAR SHOCK ABSORBER IS COMPRESSED BY AT LEAST 60 MM (2.362 IN.) AND LEFT MAIN GEAR SHOCK ABSORBER BY AT LEAST 20 MM (0.787 IN.).
Same procedure as for the adjustment of left turn stop, except that Captain's or First Officer's nose wheel steering handwheel has to be turned to the right to obtain a deflection of 65° ±1° to right (right turn).

E. Test
(1)Carry out a functional test (Ref. Para. 3.)

F. Close-Up
(1)Shut down and disconnect hydraulic ground power cart (Ref. 29-10-00, P. Block 301) or shut down Green electric pumps (Ref. 29-21-00, P. Block 301).
(2)De-energize the aircraft electrical network (Ref. 24-41-00, P. Block 301).
(3)Remove testing and adjustment device.
(4)Remove access platform
CAUTION : MAKE CERTAIN THAT THE AREA UNDER THE AIRCRAFT IS CLEAR.
(5)If aircraft is lifted off the ground and NLG shock absorber is depressurized, do these steps :
(a)Remove jack from under nose gear shock absorber.
(b)Charge nose gear shock absorber (Ref. 12-12-32, P. Block 1).
(c)Lower aircraft onto its wheels (Ref. 07-11-00, P. Block 1).
(6)If nosewheels are on greased plates, move aircraft to remove greased plates (Ref. 09-11-00, P. Block 1).
(7)Remove safety clips and tags and close circuit breakers 3KC and 4KC.



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Measurement of Gap between Bellcrank and Steering Reduction Gearbox Fool-Proofing Device
Figure 503

R

2. Operational Test

WARNING : CHECK THAT LANDING GEAR GROUND SAFETIES INCLUDING WHEEL CHOCKS ARE IN POSITION.

BEFORE APPLYING OR RELIEVING HYDRAULIC SYSTEM PRESSURE, MAKE CERTAIN THAT THE TRAVEL RANGES OF THE CONTROL SURFACES ARE CLEAR.

BEFORE PRESSURIZING HYDRAULIC SYSTEMS, CHECK THAT ALL CONTROLS ARE SET TO CORRESPOND WITH THE ACTUAL POSITION OF THE SERVICES THEY OPERATE.

A. Reason for the Job

(1)Operational test of the steering control supply system.

NOTE : Test to be accomplished after Removal/Installation of nosewheel steering selector valve 3GC or Removal/Installation of swivel fitting (1482).
This test is performed with the aircraft resting on its wheels.

B. Equipment and Materials

ITEM	DESIGNATION
(1)	Warning Notices
Referenced Procedures	
- 24-41-00, P. Block 301	AC External Power Control
- 29-21-00, P. Block 301	Green Auxiliary Power

C. Procedure

(1)Job set-up

(a)Make certain that following circuit breaker is closed :

PANEL	SERVICE	IDENT.	LOCATION
133VU	HYDRAULIC/NOSE/WHEEL/STRG	1GC	333/T53

(b)On panel 4VU
- make certain that landing gear control lever is in DOWN position and prohibit its operation by displaying a warning notice.

(c)Energize the aircraft electrical network. (Ref. 24-41-00, P. Block 301). Make certain that electronics rack ventilation system is correct.

(d)On mechanical center pedestal 9VU
- make certain that HP fuel shut off valve control levers are in OFF position

(e)Open, safety and tag the following circuit breakers :

PANEL	SERVICE	IDENT.	LOCATION
133VU	ENGINES/ENG1/FUEL HP VALVE/CTL	3KC	333/T69
133VU	ENGINES/ENG2/FUEL HP VALVE/CTL	4KC	333/T70

(f)Remove nose landing gear wheel chocks.

D. Test

(1)Test of hydraulic supply system.

(a)On interphone box (3WC) located on nose gear leg, make certain that towing control lever is in Normal position (nose wheel steering operational).

(b)Pressurize Green auxiliary system by means of Green electric pumps (Ref. 29-21-00, P. Block 301).

(c)Apply a load on Captain's left or right rudder pedal :

1 Check that nose gear wheels steer accordingly (selector valve 3GC being power supplied and hydraulic pressure applied to steering control valve).

NOTE : Captain's and First Officer's handwheels rotate accordingly as a result of mechanical pedal-handwheel coupling through the coupler.

(d)Check selector valve 3GC or swivel fitting (1482) for leakage during initial pressurization and upon completion of tests.

E. Close-Up

(1)Shut down hydraulic power (Ref. 29-21-00, P. Block 301).

(2)De-energize aircraft electrical network (Ref. 24-41-00, P. Block 301).

(3)Remove safety clips and tags and close circuit breakers 3KC and 4KC (on panel 133VU).

(4)Place nose landing gear wheel chocks.

3. Functional test

WARNING : CHECK THAT THE LANDING GEAR GROUND SAFETIES INCLUDING WHEEL CHOCKS ARE IN POSITION.

BEFORE APPLYING OR RELIEVING HYDRAULIC SYSTEM PRESSURE, MAKE CERTAIN THAT THE TRAVEL RANGES OF THE CONTROL SURFACES ARE CLEAR.

BEFORE PRESSURIZING HYDRAULIC SYSTEMS, CHECK THAT ALL CONTROLS ARE SET TO CORRESPOND WITH THE ACTUAL POSITION OF THE SERVICES THEY OPERATE.

BEFORE POWER IS SUPPLIED TO THE AIRCRAFT MAKE CERTAIN THAT ELECTRICAL CIRCUITS UPON WHICH WORK IS IN PROGRESS ARE ISOLATED.

BEFORE PRESSURIZING HYDRAULIC SYSTEMS MAKE CERTAIN THAT HYDRAULIC SYSTEM UNDER MAINTENANCE HAS BEEN ISOLATED.

A. Reasons for the Job

(1)Steering interdiction test by means of right main gear shock absorber.
(2)Steering interdiction test by means of nose gear shock absorber
(3)Steering interdiction test by means of lever on interphone box (towing).
(4)Steering interdiction test by means of HP fuel shut-off valve control levers.
(5)Test of nose wheel Zero position.
(6)Test of steering hydraulic system.
(7)Test in towing configuration

B. Equipment and Materials

ITEM	DESIGNATION
(1)	Square Steel Plate 1.2 m (4 ft)
(2)98A09001001000	Bar - Steering, Nose Wheel
(3)99A32501010000	Device - Testing and Adjustment Nose Gear Wheel Steering Control
(4)98A32503504000	Graduated Drum Nose Wheel Steering Control Handwheel
(5)	Cart - Ground Power Supply and Preliminary Testing 150 l/min. (39.6 US GPM) Hydraulic
(6)	Shock Absorber Charging Equipment
(7)	Safety Barriers
(8)	Circuit Breaker Safety Clips
(9)Material No. 04-027	Common Greases (Ref. 20-31-00)
Referenced Procedures	
- 07-11-00, P. Block 1	Jacking for Aircraft Maintenance Operations
- 09-11-00, P. Block 1	Towing
- 24-41-00, P. Block 301	AC External Power Control
- 29-10-00, P. Block 301	Main Hydraulic Power - Pressurization/ Depressurization
- 12-12-32, P. Block 1	Landing Gear Replenishing
- 29-21-00, P. Block 301	Green Auxiliary Power

C. Procedure

(1)Job set-up

(a)Jack up aircraft, until wheels are clear of ground (Ref. 07-11-00, P. Block 1).

NOTE : As an alternative, following tests can be performed with aircraft resting on its wheels :

- steering interdiction test by means of lever on interphone box (towing).
- steering interdiction test by means of HP fuel shut-off valve control levers.
- test of steering hydraulic system.
- test in towing configuration.

For this, do following steps :

. position a 1.2 m (4 ft) square steel plate in front of the nose wheels.

. apply a thick layer of Grease (Material No. 04-027) to the upper surface of the steel plate.

. put another 1.2 m (4 ft) square steel plate on top of the greased steel plate.

. move aircraft and position nose wheels on greased steel plates (Ref. 09-11-00, P. Block 1).

(b)On panel 4VU

- make certain that landing gear control lever is in DOWN position and prohibit its operation by displaying a warning notice.

(c)Between the First Officer's and 3rd Occupant's seats

- make certain that landing gear Free Fall extension control handle is in Normal position.

(d)Make certain that the following circuit breaker is closed

PANEL	SERVICE	IDENT.	LOCATION
133VU	HYDRAULIC/NOSE/WHEEL/STRG	1GC	333/T53

(e)If aircraft is lifted off the ground, do these steps :

1 Depressurize nose gear and right main gear shock absorbers.

2 Position wheel changing jack under nose gear shock absorber.

CAUTION : MAKE CERTAIN THAT WHEEL TRAVEL RANGES ARE CLEAR AROUND THE JACK ALLOWING STEERING TO THE LEFT AND TO THE RIGHT.

3 Position two wheel changing jacks under the right main gear shock absorber.

(f)Energize the aircraft electrical network (Ref. 24-41-00, P. Block 301). Make certain that electronics rack ventilation is correct.

(g)Connect hydraulic ground power cart to Green system (Ref. 29-10-00, P. Block 301).

(h)Pressurize Green hydraulic system (Ref. 29-10-00, P. Block 301) or (Ref. 29-21-00, P. Block 301).

(j)On mechanical center pedestal 9VU

- make certain that HP fuel shut off valve control levers are in OFF position.

(k)Open, safety and tag the following circuit breakers :

PANEL	SERVICE	IDENT.	LOCATION
133VU	ENGINES/ENG1/FUEL HP VALVE/CTL	3KC	333/T69
133VU	ENGINES/ENG2/FUEL HP VALVE/CTL	4KC	333/T70

D. Tests

(1)Steering interdiction test by means of right main gear shock absorber (Ref. Fig. 504)

(a)Compress nose gear shock absorber more than 60 mm (2.362 in.).

(b)Slowly compress right main gear shock absorber until wheel steering can be activated.

- check that wheel steering can be activated before the shock absorber compression reaches 20 mm (0.787 in.).

(c)Slowly extend right main gear shock absorber until the wheel steering can be deactivated.

- Check that wheel steering can be deactivated before the shock absorber compression reaches 10 mm (0.394 in.).

(2)Steering interdiction test by means of nose gear shock absorber.

CAUTION : THE STEERING ANGLE MUST NOT EXCEED 30°.

(a)Fully extend nose gear shock absorber, then compress right main gear shock absorber by more than 20 mm (0.787 in.)

(b)Slowly Compress nose gear shock absorber until wheel steering can be activated.

- Check that steering can be activated for a compression of less than 35 mm (1.38 in.)

(c)In order to check the correct condition of relay 15GC (self-latch of nose gear shock absorber relay), extend again the nose gear shock absorber relay and make certain that nose wheel steering can be activated.

(3)Steering interdiction test by means of lever on interphone box (towing).

(a)Nose gear shock absorber compressed by more than 60 mm (2.362 in.), and right main gear shock absorber by more than 20 mm (0.787 in.).

(b)On interphone box 3WC located in Zone 711 on the nose gear leg, place lever in towing position and lock lever

(c)Make certain that it is no longer possible to steer the nose wheels by means of Captain's or First Officer's handwheels or pedals (selector valve 3GC power supply cut-off).

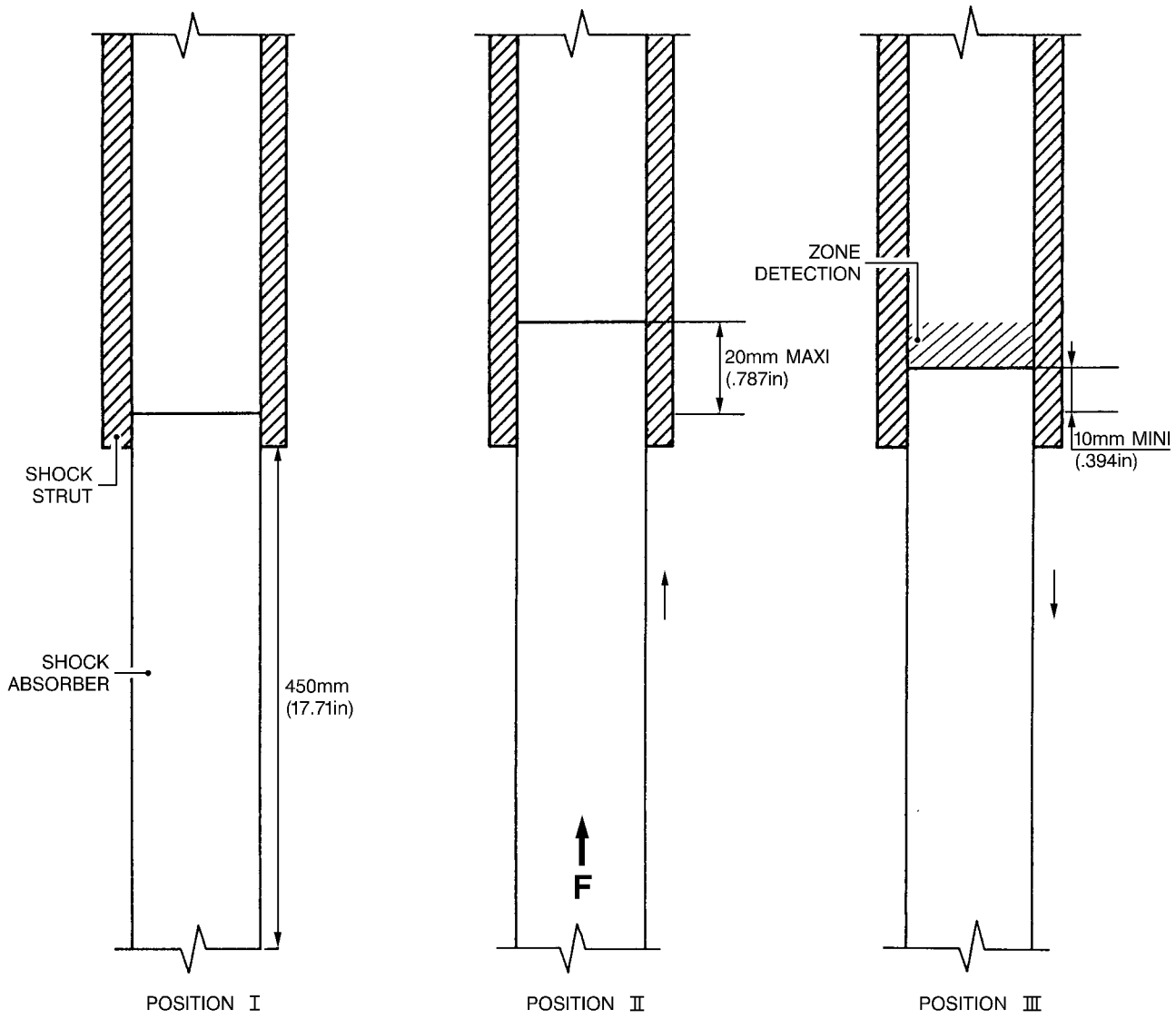
(d)On interphone box, remove safety pin and check that the lever is returned to Normal position.

(4)Steering interdiction test by means of HP fuel shut-off valve control levers.

Configuration : Right main gear shock absorber compressed more than 20mm (0.787 in.). Nose gear shock absorber compressed 60mm (2.362 in.) minimum.

(a)Remove safety clips and tags and close the following circuit breakers

PANEL	SERVICE	IDENT.	LOCATION
133VU	ENGINES/ENG1/FUEL HP VALVE/CTL	3KC	333/T69
133VU	ENGINES/ENG2/FUEL HP VALVE/CTL	4KC	333/T70



Proximity Detection-Example (MLG Shock Absorber)
Figure 504

(b)On mechanical center pedestal 9VU
- make certain that both HP fuel shut off valve control levers are in OFF position.

With Green hydraulic system pressurized check that steering is not possible by means of the handwheels or pedals (selector valve 3GC power supply cut-off).

(c)On panel 133VU, open circuit breaker 3KC (simulation of ENG 1 HP fuel shut-off valve control lever in ON position)
- check that nosewheel steering is possible via Captain's or First Officer's handwheel (selector valve 3KC supplied via relay 13KC).

(d)On panel 133VU, close circuit breaker 3KC (simulation of ENG 1 HP fuel shut-off valve control lever in OFF position)
- check that nosewheel steering is no longer possible (selector valve 3GC no longer supplied).

(e)On panel 133VU, open circuit breaker 4KC (simulation of ENG 2 HP fuel shut-off valve control lever in ON position)
- check that nosewheel steering is possible via Captain's or First Officer's handwheel (selector valve 3GC supplied via relay 14KC).

(f)On panel 133VU, close circuit breaker 4KC (simulation of ENG2 HP fuel shut-off valve control lever in OFF position)
- check that nosewheel steering is no longer possible (selector valve 3GC no longer supplied).

(g)Open, safety and tag circuit breakers 3KC and 4KC.

(5)Test of nose wheel Zero position.

(a)With Green system pressurized, extend nose gear shock absorber, mark the position of steering unit rotating tube with respect to steering unit body (zero position).

(b)Right main gear shock absorber being compressed by more than 20 mm (0.787 in.), compress nose gear shock absorber by 60 mm (2.362 in.) minimum.

(c)Make certain that steering unit tube has not moved from zero position.

(6)Test of steering hydraulic system.

Configuration : Right main gear shock absorber compressed more than 20 mm (0.787 in.). Nose gear shock absorber compressed 60 mm (2.362 in.) minimum.

(a)Check that Green system is pressurized and make certain that rudder pedals and rudder are in Zero position.

(b)Turn Captain's handwheel several times and make sure that :

CAUTION : **FIRST OFFICER'S HANDWHEEL TURNS IN THE SAME DIRECTION BY THE SAME AMOUNT, MEANWHILE AN OPERATOR ON THE GROUND SHALL CHECK THAT THE NOSE WHEELS ALSO TURN IN THE SAME DIRECTION AS THE HANDWHEEL. CHECK THE CORRECT OPERATION BOTH FOR LH AND RH DIRECTION.**

(c)Repeat the same operation with First Officer's handwheel.

(d)Turn Captain's and First Officer's handwheel to full right and left position and make certain of return to the zero position when releasing the handwheel.

(e)Operate RH and LH pedals and make certain that nose gear wheels and rudder turn to right and left in accordance with input signal.

(f)If aircraft is lifted off the ground, release RH main and nose gear

shock absorbers.

(g)If aircraft is on ground, on interphone box 3WC located on nose gear leg, place towing control lever in towing position and lock lever.

(h)Operate RH and LH pedals and make certain that :
- rudder moves freely
- steering handwheels rotate accordingly as a result of pedal-handwheel coupling
- nose wheels do not move.

(j)If aircraft is on ground, on interphone box 3WC located on nose gear leg, place towing control lever in normal position.

(7)Test in Towing Configuration

Configuration : Right main gear shock absorber compressed by more than 20 mm (0.787 in.). Nose gear shock absorber compressed at least 60 mm (2.362 in.).

(a)On interphone box 3WC located in Zone 711 on nose gear leg, place lever in towing position and install safety pin.

(b)Using tool 99A32501010000 and 98A09001001000, turn nose wheels through their maximum travel $95^{\circ}+1^{\circ}-3^{\circ}$ to the left and to the right.

(c)Using tool 98A32503504000, make certain that Captain's handwheel is rotated freely to left and right stops (318° 30').

(d)Return wheels to the Zero position.

(e)On interphone box 3WC, remove safety pin and place ground towing control lever in Normal position.

E. Close-Up

(1)Shut down and disconnect hydraulic ground power cart (Ref. 29-10-00, P. Block 301) or shut down Green electric pumps (Ref. 29-21-00, P. Block 301).

(2)De-energize the aircraft electrical network (Ref. 24-41-00, P. Block 301).

(3)On panel 4VU
- make certain that landing gear control lever is in DOWN position.

(4)If nose gear and right main gear shock absorbers are depressurized and compressed, do these steps :

(a)Release nose gear and right main gear shock absorbers and remove jacks.

(b)Charge nose gear and right main gear shock absorbers (Ref. 12-12-32, P. Block 1).

(5)Remove safety barriers and close access doors.

CAUTION : MAKE CERTAIN THAT THE AREA UNDER THE AIRCRAFT IS CLEAR.

(6)If aircraft is lifted off the ground, lower aircraft onto its wheels (Ref. 07-11-00, P. Block 1).

(7)If nose wheels are on greased steel plates, move aircraft (Ref. 09-11-00, P. Block 1) and remove greased steel plates.

(8)Remove safety clips and tags and close circuit breakers 3KC and 4KC.

4. System Test

WARNING : CHECK THAT THE LANDING GEAR GROUND SAFETIES INCLUDING WHEEL CHOCKS ARE IN POSITION.

BEFORE APPLYING OR RELIEVING HYDRAULIC SYSTEM PRESSURE, MAKE CERTAIN THAT THE TRAVEL RANGES OF THE CONTROL SURFACES ARE CLEAR.

BEFORE PRESSURIZING HYDRAULIC SYSTEMS, CHECK THAT ALL CONTROLS ARE SET TO CORRESPOND WITH THE ACTUAL POSITION OF THE SERVICES THEY OPERATE.
BEFORE POWER IS SUPPLIED TO THE AIRCRAFT, MAKE CERTAIN THAT ELECTRICAL CIRCUITS UPON WHICH WORK IS IN PROGRESS ARE ISOLATED.

BEFORE PRESSURIZING HYDRAULIC SYSTEM MAKE CERTAIN THAT HYDRAULIC SYSTEM UNDER MAINTENANCE HAS BEEN ISOLATED.

A. Reasons for the Job

(1)Steering interdiction test by means of right main gear shock absorber
(2)Steering interdiction test by means of nose gear shock absorber.
(3)Steering interdiction test by means of lever on interphone box (towing).
(4)Steering interdiction test by means of HP fuel shut off valves
(5)Test of nose wheel Zero position.
(6)Test of steering hydraulic system.
(7)Test in Towing configuration.

B. Equipment and Materials

ITEM	DESIGNATION
(1)	Cart - Ground Power Supply and Preliminary Testing 150 l/min. (39.6 US GPM) Hydraulic
(2)98A09001001000	Bar - Steering, Nose Wheel
(3)	Shock Absorber Charging Equipment
(4)	Dynamometer
(5)99A32501010000	Device - Testing and Adjustment, Nose Gear Wheel Steering Control
(6)	Measuring Equipment (Voltmeter)
(7)	Stop Watch
(8)	Interphone
(9)	Safety Barriers
(10)	Warning Notice
(11)	Access Platform
(12)	Circuit Breaker Safety Clips
Referenced Procedures	
- 07-11-00, P. Block 1	Jacking for Aircraft Maintenance Operations
- 12-12-32, P. Block 1	Landing Gear Replenishing
- 24-41-00, P. Block 301	AC External Power Control
- 29-10-00, P. Block 301	Main Hydraulic Power - Pressurization/ Depressurization
- 29-21-00, P. Block 301	Green Auxiliary Power

C. Procedure

(1)Job set-up

(a)Jack up aircraft, until wheels are clear of ground (Ref. 07-11-00, P. Block 1).

(b)Position safety barriers

(c)On panel 4VU

- make certain that landing gear control lever is in DOWN position and prohibit its operation by displaying a warning notice.

(d)Between the First Officer's and Third Occupant's seats

- make certain that landing gear Free Fall extension control handle is in Normal position.

(e)Make certain that the following circuit breakers are closed :

PANEL	SERVICE	IDENT.	LOCATION
133VU	HYDRAULIC/NOSE/WHEEL/STRG	1GC	333/T53
22VU	LDG GEAR/EXTEND/CTL	1GA	201/J27
133VU	HYDRAULIC/L/G PROX DET/& RELAYS SYS2/FLT/GND	1GB	331/V52

(f)Depressurize nose gear and right main gear shock absorbers.

(g)Position a wheel changing jack under the nose gear shock absorber.

CAUTION : MAKE CERTAIN THAT NOSE WHEEL TRAVEL RANGE IS CLEAR AROUND THE JACK ALLOWING STEERING TO LEFT AND RIGHT.

(h)Position two wheel changing jacks under right main gear shock absorber.

(j)Energize the aircraft electrical network (Ref. 24-41-00, P. Block 301). Make certain that electronics rack ventilation system is in operation.

(k)Connect hydraulic ground power cart to Green system and pressurize system (Ref. 29-10-00, P. Block 301) or pressurize Green system by Green electric pumps (Ref. 29-21-00, P. Block 301).

(l)On interphone box 3WC located on nose gear in Zone 711, make certain that lever is in Normal position.

(m)Install graduated sector on nose gear leg.

(n)On mechanical center pedestal 9VU.

- make certain that HP fuel shut off valve control levers are in OFF position.

(q)Open, safety and tag the following circuit breakers :

PANEL	SERVICE	IDENT.	LOCATION
133VU	ENGINES/ENG1/FUEL HP VALVE/CTL	3KC	333/T69
133VU	ENGINES/ENG2/FUEL HP VALVE/CTL	4KC	333/T70

D. Tests

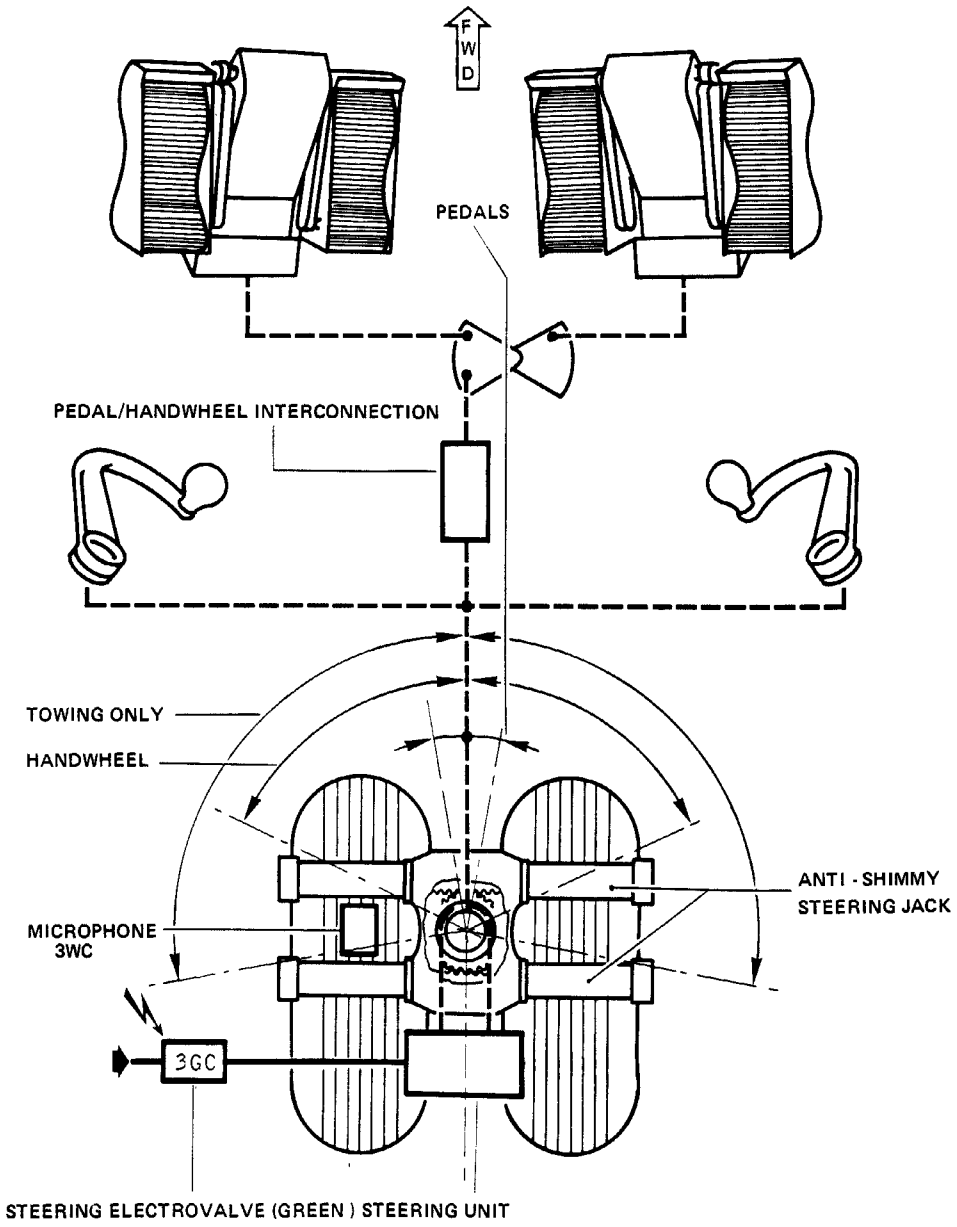
(Ref. Fig. 505)

(1)Steering interdiction by means of right main gear shock absorber.

(a)Disconnect connector 3GCA from selector valve 3GC.

(b)Compress nose gear shock absorber by more than 36 mm (1.417 in.).

(c)Slowly compress right main gear shock absorber until 28 Volts is obtained at terminals A and B of connector 3GCA.



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Steering Control
Figure 505

(d)Check that 28V appears for a shock absorber compression of less than 20 mm (0.787 in.)
(e)Slowly release right main gear shock absorber until voltage is zero at terminals A and B of connector 3GCA.
- check that the voltage disappears at a compression greater than 10 mm (0.394 in.).
(f)Connect connector 3GCA to selector valve 3GC.
(2)Steering interdiction test by means of nose gear shock absorber.
(a)Disconnect connector 3GCA from selector valve 3GC
(b)Make certain that nose gear shock absorber isfully extended, then compress right main gear shock absorber more than 20 mm (0.787 in.).
(c)Compress nose gear shock absorber until 28 Volts is obtained at terminals A and B of connector 3GCA.
- Check that the voltage appears at a shock absorber compression of less than 35 mm (1.38 in.).
(d)Check nose wheel steering can be activated when nose gear shock absorber is extended.
(e)Connect connector 3GCA to selector valve 3GC.
(3)Steering interdiction test by means of ground towing control lever.
(a)In nose gear well, in zone 123, disconnect connector 3GCA from selector valve 3GC and using voltmeter, make certain that voltage is 28 Volts at terminals A and B of connector 3GCA.
(b)On interphone box 3WC located on nose gear leg, place ground towing control lever in towing position and install pin.
- check that voltage is zero at terminals A and B of connector 3GCA.
(c)Connect connector 3GCA to selector valve 3GC.
(d)Remove safety pin and check that ground towing control lever returns to "Normal" position.
(4)Steering interdiction test by means of HP fuel shut off valves.
(a)Remove safety clips and tags and close the following circuit breakers :

PANEL	SERVICE	IDENT.	LOCATION
133VU	ENGINES/ENG1/FUEL HP VALVE/CTL	3KC	333/T69
133VU	ENGINES/ENG2/FUEL HP VALVE/CTL	4KC	333/T70

(b)Disconnect connector 3GCA from selector valve 3GC.
(c)On mechanical center pedestal 9VU.
- make certain that both HP fuel shut off valve control levers are in OFF position.
1 With voltmeter, check that voltage at terminals of connector 3GCA is 0 volt (Selector valve power supply cut off).
(d)Check that voltage at terminals of connector 3GCA is 28 Volts (selector valve power supplied) when either HP fuel shut off valve control lever is in the ON position.
(e)Open, safety and tag the circuit breakers closed in paragraph (a).
(5)Test of nosewheel zero position (Ref. Functional Test, paragraph (5)).
(6)Test of steering hydraulic system.
(a)Make certain that nose gear shock absorber is compressed by 60 mm (2.362 in.) approximately and right main gear shock absorber by more than 20 mm (0.787 in.).

(b)Make certain that rudder pedals and rudder are in the Zero position
(c)Turn Captain's handwheel several times to right and to left.
CAUTION : MAKE SURE THAT CAPTAIN'S AND FIRST OFFICER'S HANDWHEELS TURN IN THE SAME DIRECTION.
Note the following values
- handwheel travel range to the right and to the left 65° (hand wheel index)
- wheel travel range to the right and to the left 65 ±1°.
- angle of non-return to zero of wheels, to right and left ±1°20'
(d)Rotate Captain's handwheel fully clockwise then counterclockwise and note the following times (mases permissible values) from zero to the right (4.5 ± 0.5 s) from the right to zero (4.5 ± 0.5 s), from zero to the left (4.5 ± 0.5 s), from the left to zero (4.5 ± 0.5 s).
(e)Progressively depress left Captain's rudder pedal then right pedal and check the following for a fully depressed position of pedal (max displacement of pedal) :
- rudder pedal fully deflection
- wheel maximum displacement : 6° ±1°
- non-return to zero of wheels : ±1°20'.
(f)Repeat the same operation with First Officer's handwheel and rudder pedals.
(g)Not applicable
(h)Not applicable
(7)Test in towing configuration
(a)With Green hydraulic system depressurized, on interphone box 3WC place ground Towing control lever in Towing position and install pin.
(b)Using the tool replacing the tow bar, turn nose wheels to right, then to left, and check the following :
- handwheel displacement ≅ 318°30'
- wheel displacement : 95° + 0°
- 2°
- maximum drive torque to right and to left ≤ 50 m.daN (368.8 lbf.ft).
(c)On interphone box 3WC, remove safety pin and check that control lever is returned to Normal position.

E. Close-Up
(1)Shut down and disconnect hydraulic ground power cart (Ref. 29-10-00, P. Block 301) or shut down Green electric pumps (Ref. 29-21-00, P. Block 301).
(2)De-energize the aircraft electrical network (Ref. 24-41-00, P. Block 301).
(3)Remove all tools and equipment used.
(4)On panel 4VU
- make certain that landing gear control lever, is in DOWN position.
(5)Release nose and right main gear shock absorbers and remove jacks from under the two shock absorbers.
(6)Charge nose gear and right main gear shock absorbers (Ref. 12-12-32, P. Block 1).
(7)Remove safety barriers, close access doors and withdraw access platform.
CAUTION : MAKE CERTAIN THAT THE AREA UNDER THE AIRCRAFT IS CLEAR.

(8)Lower the aircraft onto its wheels (Ref. 07-11-00, P. Block 1).
(9)Remove safety clips and tags and close circuit breakers 3KC and 4KC.

WARNING : CHECK THAT THE LANDING GEAR GROUND SAFETIES INCLUDING WHEEL CHOCKS ARE IN POSITION.
BEFORE APPLYING OR RELIEVING HYDRAULIC SYSTEM PRESSURE, MAKE CERTAIN THAT THE TRAVEL RANGES OF THE CONTROL SURFACES ARE CLEAR.
BEFORE PRESSURIZING HYDRAULIC SYSTEMS, CHECK THAT ALL CONTROLS ARE SET TO CORRESPOND WITH THE ACTUAL POSITION OF THE SERVICES THEY OPERATE.
BEFORE POWER IS SUPPLIED TO THE AIRCRAFT MAKE CERTAIN THAT ELECTRICAL CIRCUITS UPON WHICH WORK IS IN PROGRESS ARE ISOLATED.
BEFORE PRESSURIZING HYDRAULIC SYSTEMS, MAKE CERTAIN THAT HYDRAULIC SYSTEM UNDER MAINTENANCE HAS BEEN ISOLATED.

1. Check of Steering Control

A. Reason for the Job
(1)Check of steering control : cables, pulleys, cranks and mountings.

B. Equipment and Materials

ITEM	DESIGNATION
(1)	Safety Barriers
(2)	Access Platform (2.60 m - 2 m) (8 ft. 7 in. - 6 ft. 7 in.)
(3)	Warning Notice
Referenced Procedure - 32-22-11, P. Block 301	Nose Gear Main Door - (Ground Door(s) Opening)

C. Procedure
(1)Job Set-Up
(a)On panel 4VU
- make certain that landing gear control lever is in DOWN position and prohibit its operation by displaying a warning notice.

(b)Between First Officer's and Third Occupant's seats
- make certain that Free Fall extension control handle is in Normal position.

(c)Position access platforms.
(d)Position safety barriers prohibiting access to gear door travel ranges.
WARNING : MAKE CERTAIN THAT DOOR TRAVEL RANGES ARE CLEAR
(e)Open nose gear doors (Ref. 32-22-11, P. Block 301).
WARNING : WHEN DOORS ARE OPEN MAKE CERTAIN THAT SAFETY COLLARS ARE POSITIONED ON DOOR ACTUATING CYLINDERS.
(f)Remove floor panels for accomplishment of inspection : 122PF, 122NF, 122MF, 122LF, 122KF, 122FF.
(2)Check
(a)Check of cables
1 Check visible areas of cable for broken strands.
2 Check that safetying provisions at tensioners are in position.

3 Check that crimping of end fittings is correct.

(b)Check of pulleys

1 Check on each pulley for fractures on edges of pulley grooves.

2 Check for side play on each pulley.

3 Make certain that protection plates are not damaged or deformed.

(c)Check of cranks and mountings.

1 Check attaching parts and safetying.

2 Make certain that there is no evidence of impact or corrosion and check that protective paintwork is intact.

(3)Close-Up

(a)Make certain that working area is clean and clear of tools and miscellaneous items of equipment. Install floor panels previously removed.

WARNING : MAKE CERTAIN THAT DOOR TRAVEL RANGES ARE CLEAR.

(b)Close gear doors (Ref. 32-22-11, P. Block 301).

(c)Remove warning notice.

(d)Close access doors, remove access platforms and safety barriers.

(e)Remove all ground handling and maintenance equipment, standard and special tools, together with ground power and replenishing equipment, all access equipment and miscellaneous items.

2. Check of Cable Tension

A. Reason for the Job
(1)Check of steering control cable tension.

B. Equipment and Materials

ITEM	DESIGNATION
(1)	Access Platforms (2.60m -2m) (8 ft. 7 in. - 6 ft. 7 in.)
(2)	Safety Barriers
(3)	Warning Notice
(4)	Tensiometer
(5)98A32501003000	Pin-Rigging, Nose Gear Wheel Steering Control
(6)98A32501005000	Pin-Rigging, Wheel Steering Control
Referenced Procedures	
- 32-22-11, P. Block 301	Nose Gear Main Door - (Ground Door(s) Opening)
- 32-51-00, P. Block 501	Steering - Adjustment/Test

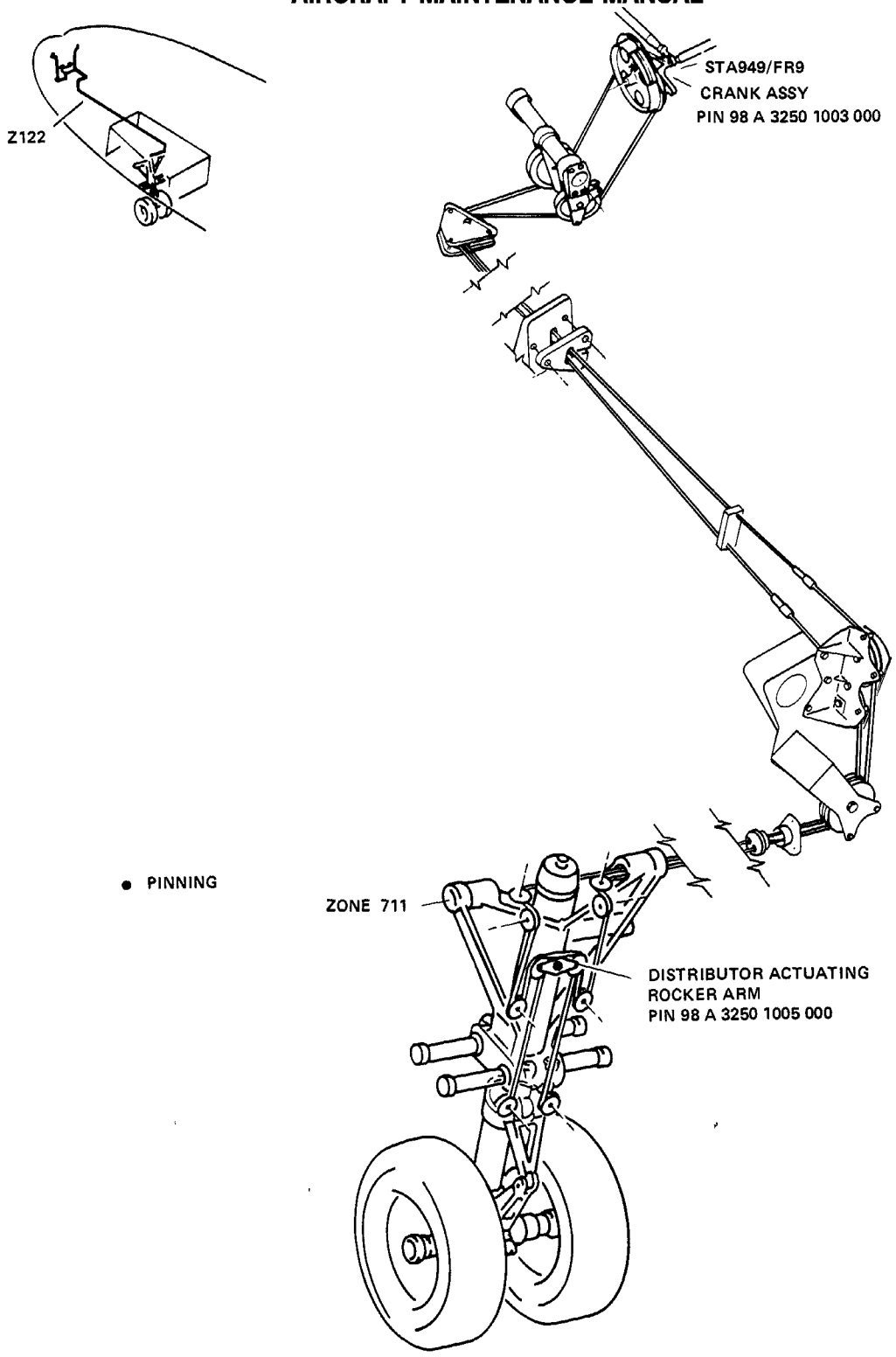
C. Procedure
(1)Job Set-Up
(a)On panel 4VU
- make certain that landing gear control lever is in **DOWN** position and prohibit its operation by displaying a warning notice.

(b)Between First Officer's and Third Occupant's seats
- make certain that Free Fall extension control handle is in Normal position.

(c)Position access platforms.
(d)Position safety barriers prohibiting access to gear door travel ranges.
WARNING : MAKE CERTAIN THAT DOOR TRAVEL RANGES ARE CLEAR.
(e)Open nose gear doors (Ref. 32-22-11, P. Block 301).
WARNING : WHEN DOORS ARE OPEN MAKE CERTAIN THAT SAFETY COLLARS ARE POSITIONED ON DOOR ACTUATING CYLINDERS.

(2)Check
(Ref. Fig. 601, 602)
R (a)Lock steering control in zero position at bellcrank **STA9491(FR9)** using rigging pin **98A32501003000.**
(b)Lock the steering unit at control lever using rigging pin **98A32501005000.**
(c)Check tension of each cable using a tensiometer taking into account ambient temperature.
(d)In the event that tension is not correct carry out adjustment (Ref. 32-51-00, P. Block 501).
(e)Remove rigging pins **98A32501003000** and **98A32501005000.**

(3)Close-Up
(a)Make certain that working area is clean and clear of tools and miscellaneous items of equipment.
WARNING : MAKE CERTAIN THAT THE DOOR TRAVEL RANGE IS CLEAR.
(b)Close doors (Ref. 32-22-11, P. Block 301).



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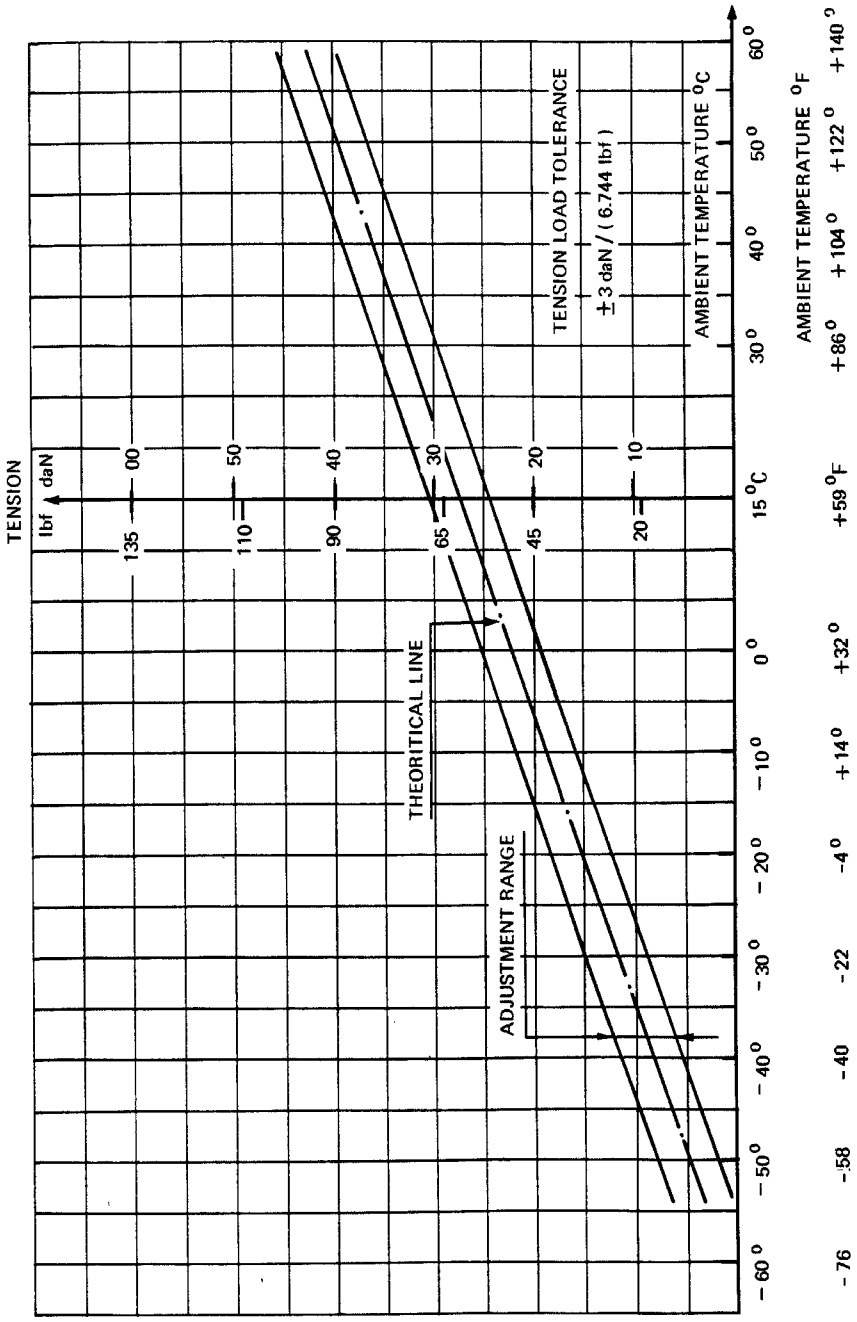
Check of Cable Tension - Rigging
Figure 601



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Steering Control - Cable Tension Graph
Figure 602

(c)Remove warning notice.
(d)Close access doors and safety barriers.
(e)Remove all ground handling and maintenance equipment, standard and special tools, together with ground power and replenishing equipment, all access equipment and miscellaneous items.

3. Check of Nose Wheel Steering/Actuating Cylinder Attachment/Bolts

A. Reason for the Job
To check that none of the nose wheel steering actuating cylinder attachment bolts are broken.

B. Equipment and Materials

ITEM	DESIGNATION
(1)	Warning Notice
Referenced Procedure - 32-51-00, P. Block 501	Steering

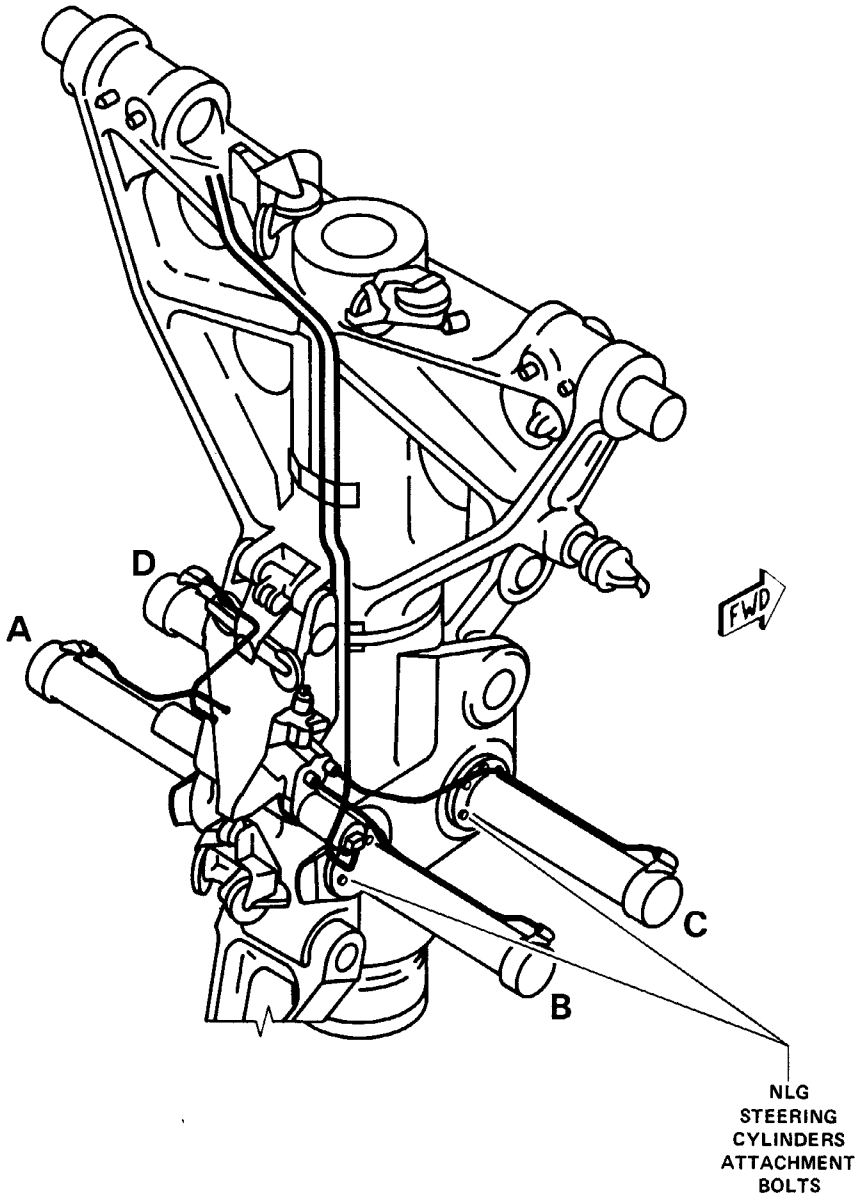
C. Procedure
(1)Job set-up
(a)On panel 4VU
- make certain that landing gear control lever is in DOWN position and prohibit its operation by displaying a warning notice.

(b)Between First Officer's and Third Occupant's seats
- make certain that Free Fall extension control handle is in Normal position.

(2)Check (Ref. Fig. 603)
Check condition of nose wheel steering actuating cylinder attachment bolts.
Apply following recommendations if any of the bolts are broken.
(a)No more than 3 non-consecutive bolts or 2 consecutive bolts per actuating cylinder.
R - Loosen remaining nuts and TORQUE to between 2.5 and 3m.daN (18.43 and 22.12 lbf.ft)
- Perform daily inspection of remaining bolts.
Replace broken bolts during overhaul.

(b)More than 3 non-consecutive bolts or more than 2 consecutive bolts per actuating cylinder.
- Cylinders affected : D and A, or C and B, or D and C, or A and B : 10 commercial flights or return to home base are allowed before replacement of broken bolts. However, cylinders affected must be deactivated (Ref. 32-51-00, P. Block 901, para. 3).
- Cylinders affected : D and B, or A and C, or more than 2 cylinders : Replace broken bolts immediately.
One ferry flight only is allowed to return aircraft to home base for repair.

(3)Close-up
(a)Make certain that working area is clean and clear of tools and miscellaneous items of equipment.



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Steering Actuating Cylinder
Figure 603

R 4. Detailed Visual Inspection of Control Cables

R A. Reason for the Job

R To make certain that the integrity of control cables is correct in hidden parts of control linkage.

R B. Equipment and Materials

ITEM	DESIGNATION
(1)	Access Platforms (2.60 m - 2 m) (8 ft. 7 in. - 6 ft. 7 in.)
(2)	Safety Barriers
(3)	Warning Notice
Referenced Procedures	
- 20-29-12, P. Block 1	Cable Installation
- 24-41-00, P. Block 301	AC External Power Control
- 29-21-00, P. Block 301	Green Auxiliary Power
- 32-22-11, P. Block 301	Nose Gear Main Door (Ground Door(s) Opening)
- 32-51-00, P. Block 401	Steering

R C. Procedure

R (1)Job set-up

R (a)On panel 4VU, make certain that landing gear Normal control lever is in DOWN position and prohibit its operation by displaying a warning notice.

R (b)Between the First Officer's and Third Occupant's seats, make certain that landing gear Free Fall extension control handle is in Normal position.

R (c)Position access platforms.

R (d)Position safety barriers prohibiting access to gear door travel ranges.

R WARNING : MAKE CERTAIN THAT DOOR TRAVEL RANGES ARE CLEAR.

R (e)Open nose gear doors (Ref. 32-22-11, P. Block 301).

R WARNING : WHEN DOORS ARE OPEN MAKE CERTAIN THAT SAFETY COLLARS ARE POSITIONED ON DOOR ACTUATING CYLINDERS.

R (f)On interphone box 3WC located on nose gear leg, Zone 711, make certain that lever is in normal position.

R (g)Energize the aircraft electrical network (Ref. 24-41-00, P. Block 301). Make certain that electronics rack ventilation system is in operation.

R (h)Pressurize Green auxiliary system by means of Green electric pumps (Ref. 29-21-00, P. Block 301).

R (j)On mechanical center pedestal 9VU, make certain that HP fuel shut off valve control levers are in OFF position.

R (k)Open, safety and tag the following circuit breakers :

PANEL	SERVICE	IDENT.	LOCATION
133VU	ENGINES/ENG1/FUEL HP VALVE/CTL	3KC	333/T69
133VU	ENGINES/ENG2/FUEL HP VALVE/CTL	4KC	333/T70

R (l)Remove floor panels for accomplishment of inspection : 122DF, 122KF, 122JF, 122HF, 122GF, 122FF.
R (m)Remove nose landing gear wheel chocks.

R (2)Detailed inspection of steering system control cables
R (a)Make certain that visible areas of control cables do not have kinks, broken wires or too much wear (Ref. 20-29-12, P. Block 1).
R (b)Check that safetying provisions at tensioners are in position.
R (c)Check that crimping of end fittings is correct.
R (d)Turn Captain's steering handwheel located in the flight compartment to the left to obtain a nose wheel deflection of 65Δ to left (left turn).
R (e)Make certain that hidden parts of control cables in contact with pulleys do not have kinks, broken wires or too much wear (Ref. 20-29-12, P. Block 1).
R (f)Turn Captain's steering handwheel to the right to obtain a nose wheel deflection of 65Δ to right (right turn).
R (g)Make certain that hidden parts of control cables in contact with pulleys do not have kinks, broken wires or too much wear (Ref. 20-29-12, P. Block 1).
R (h)If there is damage, replace related control cable (Ref. 32-51-00, P. Block 401).
R (j)Return Captain's steering handwheel to the 0Δ position.

R (3)Close-up
R (a)Shut down Green electric pumps (Ref. AMM 29-21-00, P. Block 301).
R (b)De-energize the aircraft electrical network (Ref. 24-41-00, P. Block 301).
R (c)Remove safety clips and tags and close circuit breakers 3KC and 4KC.
R (d)Install floor panels previously removed in zone 122.
R (e)Close nose gear doors (Ref. 32-22-11, P. Block 301).
R (f) Remove warning notice.
R (g)Place nose landing gear wheel chocks.
R (h)Remove access platform and safety barriers.

R CAUTION : MAKE CERTAIN THAT THE AREA UNDER THE AIRCRAFT IS CLEAR.

R 1. Steering - Deactivation/Reactivation (FAA only)
R Ref. MMEL 32-51-01 (Rudder Pedal Nose Wheel Steering System) (FAA only)
R CAUTION : THIS PROCEDURE IS TO BE USED ACCORDING TO THE REQUIREMENTS OF THE
R FAA MMEL.

R A. Rudder Pedal Nose Wheel System
R (1)Equipment and materials

ITEM	DESIGNATION
(1)	Square Steel Plate 1.2 m (4 ft.)
(2)	Cart - Ground Power Supply and Preliminary Testing 150 l/min. (39.6 US GPM) Hydraulic
(3)	Safety Barriers
(4)	Circuit Breaker Safety Clips
Referenced Procedures	
- 09-11-00, P. Block 1	Towing
- 24-41-00, P. Block 301	AC External Power Control
- 29-10-00, P. Block 301	Main Hydraulic Power - Pressurization/ Depressurization
- 29-21-00, P. Block 301	Green Auxiliary Power

R (2)Procedure
R (a)Position a 1.2 m (4 ft.) square steel plate in front of the nose wheels.
R (b)Apply a thick layer of Material No. 04-027 to the upper surface of the steel plate.
R (c)Put another 1.2 m (4 ft.) square steel plate on top of the greased steel plate.
R (d)Move aircraft and position nose wheels on greased steel plates (Ref. 09-11-00, P. Block 1).
R (e)On panel 4VU
R - make certain that landing gear control lever is in DOWN position and prohibit its operation by displaying a warning notice.
R (f)Between the First Officer's and 3rd Occupant's seats make certain that landing gear Free Fall extension control handle is in Normal position.
R (g)Make certain that the following circuit breaker is closed

PANEL	SERVICE	IDENT.	LOCATION
133VU	HYDRAULIC/NOSE/WHEEL/STRG	1GC	333/T53

R (h)Energize the aircraft electrical network (Ref. 24-41-00, P. Block 301). Make certain that electronics racks ventilation system is correct.
R (i)Connect hydraulic ground power cart to Green system (Ref. 29-10-00, P. Block 301).
R (j)Pressurize Green hydraulic system (Ref. 29-10-00, P. Block 301) or (Ref. 29-21-00, P. Block 301).

R (k)On mechanical center pedestal 9VU
R - make certain that HP fuel shut off valve control levers are in OFF position
R (l)Open, safety and tag the following circuit breakers :

PANEL	SERVICE	IDENT.	LOCATION
133VU	ENGINES/ENG1/FUEL HP VALVE/CTL	3KC	333/T69
133VU	ENGINES/ENG2/FUEL HP VALVE/CTL	4KC	333/T70

R (3)Tests
(a)Turn Captain's handwheel several times and make sure that :
CAUTION : FIRST OFFICER'S HANDWHEEL TURNS IN THE SAME DIRECTION BY THE SAME AMOUNT, MEANWHILE AN OPERATOR ON THE GROUND SHALL CHECK THAT THE NOSE WHEELS ALSO TURN IN THE SAME DIRECTION AS THE HANDWHEEL. CHECK THE CORRECT OPERATION BOTH FOR LH AND RH DIRECTION.
(b)Repeat the same operation with First Officer's handwheel.
(c)Place a temporary placard in flight compartment to warn flight crew that the rudder pedal nose wheel steering system is deactivated.
(d)Make an entry in the aircraft technical log.
R (4)Close-up
(a)Shut down and disconnect hydraulic ground power cart (Ref. 29-10-00, P. Block 301) or shut down Green electric pumps (Ref. 29-21-00, P. Block 301).
(b)De-energize the aircraft electrical network (Ref. 24-41-00, P. Block 301).
(c)Remove safety barriers and close access doors.
CAUTION : MAKE CERTAIN THAT THE AREA UNDER THE AIRCRAFT IS CLEAR.
(d)Move aircraft (Ref. 09-11-00, P. Block 1) and remove greased steel plates.
(e)Remove safety clips and tags and close circuit breakers 3KC and 4KC.
R
R 2. Steering - Deactivation/Reactivation (not FAA)

R A. Nose Wheel Steering Control System Deactivation
Ref. MMEL Sect. 1-32, item 21a. (Nose wheel steering control system)
CAUTION : THIS PROCEDURE IS TO BE USED ACCORDING TO THE REQUIREMENTS OF THE MMEL.

WARNING : CHECK THAT LANDING GEAR GROUND SAFETIES INCLUDING WHEEL CHOCKS ARE IN POSITION.
R (1)Equipment and materials

ITEM	DESIGNATION
(1)	Access Platforms
(2)	Warning Notices
Referenced Procedures	
- 24-41-00, P. Block 301	AC External Power Control
- 29-21-00, P. Block 301	Green Auxiliary Power
- 32-22-11, P. Block 301	Nose Gear Main Door (Ground Door(s) Opening)

R (2)Procedure
R (a)Job set-up
R 1 Energize the aircraft electrical network (Ref. 24-41-00, P. Block 301).
R 2 Make certain that electronics racks ventilation is correct.
R (b)Deactivation
R 1 Open, safety and tag the following circuit breaker :

PANEL	SERVICE	IDENT.	LOCATION
133VU	HYDRAULIC/NOSE/WHEEL/STRG	1GC	333/T53

NOTE : When deactivation consists in opening a monitored circuit breaker, the procedure below shall be inplemented.

R 2 On maintenance panel 472VU :
- place **ANN LT** switch in **READ** position
- on **C/B MONITOR** section, **OPEN** legend on **QRSTUV 51/65** pushbutton switch comes on.

R 3 Press pushbutton switch and check that **OPEN** legend goes off and **INHIB** legend comes on.
R 4 On maintenance panel 472VU :
- Place **ANN LT** switch in **OFF** position.

R 5 Display a warning notice to inform flight crew of **C/B MONITOR INHIB** message on left **ECAM** display unit and **MASTER CAUTION** light on.
NOTE : In the event of hydraulic fluid leakage, disconnect all hydraulic lines at selector valve **3GC** and install blanking plugs.

R (c)Check
R 1 Pressurize Green auxiliary system by means of Green electric pumps (Ref. 29-21-00, P. Block 301).
R 2 Operate Captain's or First Officer's steering control handwheel and check that steering system is inoperative.
R 3 Perform a nose gear main door servicing (Ref. 32-22-11, P. Block 301).
R (d)Close-up
R 1 Shut down Green electric pumps (Ref. 29-21-00, P. Block 301).
R 2 De-energize the aircraft electrical network (Ref. 24-41-00, P. Block 301).
R 3 Make an entry in the aircraft technical log.

R B. Nose Wheel Steering Control System Reactivation
R
R Ref. MMEL Sect. 1-32, item 21a. (Nose wheel steering control system)
R CAUTION : THIS PROCEDURE IS TO BE USED ACCORDING TO THE REQUIREMENTS OF THE
R MMEL.

R WARNING : CHECK THAT LANDING GEAR GROUND SAFETIES INCLUDING WHEEL CHOCKS
R ARE IN POSITION.
R (1)Equipment and materials

ITEM	DESIGNATION
Referenced Procedures	
- 24-41-00, P. Block 301	AC External Power Control
- 32-51-00, P. Block 501	Steering

R (2)Procedure
R (a)Job set-up
R 1 Energize the aircraft electrical network (Ref. 24-41-00, P. Block 301).
R 2 Make certain that electronics racks ventilation is correct.
R (b)Reactivation
R 1 Remove safety clip and tag and close the following circuit breaker.

PANEL	SERVICE	IDENT.	LOCATION
133VU	HYDRAULIC/NOSE/WHEEL/STRG	1GC	333/T53

R 2 On maintenance panel 472VU :
- place ANN LT switch in READ position.
R 3 On C/B MONITOR section, press then release QRSTUV 51/65 pushbutton switch
- INHIB legend on this pushbutton switch goes off.
R 4 On maintenance panel 472VU :
- place ANN LT switch in OFF position.
NOTE : If, for reasons of fuel leakage, hydraulic lines were disconnected, remove blanking plugs and connect hydraulic lines to selector valve 3GC.
R (c)Test
R 1 Perform steering system functional test (Ref. 32-51-00, P. Block 501 Functional Test, item 6).
R (d)Close-up
R 1 De-energize the aircraft electrical network (Ref. 24-41-00, P. Block 301).

R C. Deactivation of Nose Wheel Steering Actuating Cylinder
R
R (1)Equipment and materials

ITEM	DESIGNATION
(1)98A32501005000	Pin-Rigging, Nose Gear Wheel Steering Unit
(2)C22646	Safety Pin
(3)	Circuit Breaker Safety Clips
(4)	Hydraulic Fluid Container
(5)	Blanking Plugs
(6)	Warning Notices
Referenced Procedures	
- 24-41-00, P. Block 301	AC External Power Control
- 29-10-00, P. Block 301	Main Hydraulic Power-Pressurization/ Depressurization
- 29-14-00, P. Block 301	Hydraulic Reservoir Pressurizing System
- 29-21-00, P. Block 301	Green Auxiliary Power
- 32-51-00, P. Block 501	Steering
- 32-22-11, P. Block 301	Nose Gear Main Door (Ground Door(s) Opening)

R (2)Procedure
R (a)Job set-up
R 1 On panel 4VU
- Make certain that landing gear control lever is in **DOWN** position and prohibit its operation by displaying a warning notice.
R 2 Between First Officer's and Third Occupant's seat
- Make certain that free fall extension control handle is in Normal position.
R 3 Depressurize green hydraulic reservoir (Ref. 29-14-00, P. Block 301) and prohibit its pressurization by displaying a warning notice :
- on panel 429VU to prohibit APU starting
- on reservoir pressurization connector
R 4 Depressurize Green hydraulic system (Ref. 29-10-00, P. Block 301) and prohibit its pressurization by displaying a warning notice :
- on green hydraulic system ground connectors
- on panel 427VU to prohibit operation of Green electric pumps (**ELEC PUMPS** pushbutton switch).
R 5 Place the ground towing control lever in **DISCONNECT** position and install safety pin C22646.
R (b)Deactivation
R 1 Immobilize rocker (1) on steering unit with rigging pin 98A32501005000.
R 2 Depressurize accumulator
R - Remove valve cap (4).
R - Connect a hose to union (E).
R - Loosen bleed valve nut (3) and recover hydraulic fluid in a container.
R - When fluid flow stops, disconnect hose from union (E) and tighten

bleed valve nut (3).

R 3 Disconnect lines at faulty steering actuating cylinders.
NOTE : If only one actuating cylinder is faulty the two chambers (front or rear, A & B or C & D) must be deactivated to balance loads on rack.

R 4 Disconnect and remove rigid pipes from accumulator and blank off open accumulator ports.

R 5 Drain chamber of actuating cylinder affected to avoid hydraulic fluid splashing during operation of steering system.

R 6 Install blanking plugs on actuating cylinder affected.
NOTE : Actuating cylinder blanking plugs must have dia 1 mm (0.0393 in.) holes to vent chambers.

R 7 Bleed selector valve

R - Make certain that following circuit breaker is closed :
(Ref. Fig. 901)

PANEL	SERVICE	IDENT.	LOCATION
133VU	HYDRAULIC/NOSE/WHEEL/STRG	1GC	333/T53

R - On center pedestal 9VU, make certain that the HP fuel shut-off valve control levers are in OFF position

R - Open, safety and tag the following circuit breakers :

PANEL	SERVICE	IDENT.	LOCATION
133VU	ENGINES/ENG1/FUEL HP VALVE/CTL	3KC	333/T69
133VU	ENGINES/ENG2/FUEL HP VALVE/CTL	4KC	333/T70

R - Remove safety pin C22646 and place ground towing control lever in NORMAL position.

R - Energize the aircraft electrical network (Ref. 24-41-00, P. Block 301). Make certain that electronics racks ventilation is correct.

R - Pressurize Green auxiliary system (Ref. 29-21-00, P. Block 301).

R - Connect a hose to union (E).

R - Slowly loosen bleed valve nut (3) and bleed hydraulic fluid until it is free from air bubbles.

R - Tighten bleed valve nut (3) and disconnect hose from union (E).

R - Install valve cap (4).

R 8 Remove rigging pin 98A32501005000.

R 9 Shut down Green hydraulic system (Ref. 29-21-00, P. Block 301).

R 10 De-energize the aircraft electrical network (Ref. 24-41-00, P. Block 301).

R 11 Remove safety clips and tags and close circuit breakers 3KC and 4KC.

R (c)Test

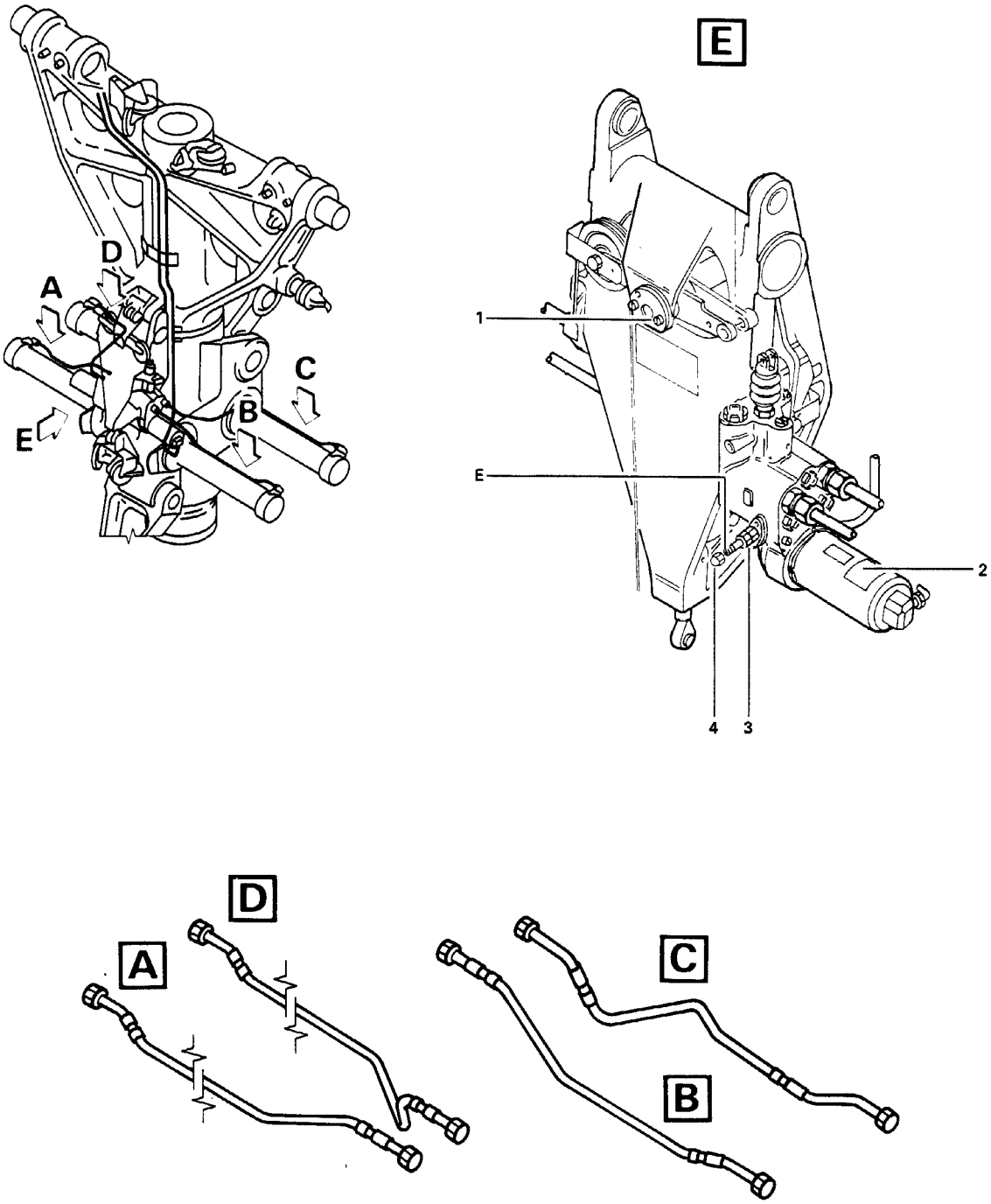
R 1 Pressurize Green hydraulic reservoir (Ref. 29-14-00, P. Block 501).

R 2 Perform a nose gear main door servicing (Ref. 32-22-11, P. Block 301).

R 3 Perform operational test of steering system (Ref. 32-51-00, P. Block 501, Para. 2).

R 4 Check for hydraulic fluid leakage at accumulator.

R (3)Close-up



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Nose Gear - Steering Control
Figure 901

R (a) Display a warning notice in flight compartment indicating that a steering actuating cylinder is deactivated and consequently nose wheel steering operating time is increased and anti-shimmy efficiency is reduced.

R (b) Make certain that working area is clean and clear of tools and miscellaneous items of equipment.

R D. Reactivation of Nose Wheel Steering Actuating Cylinder
R
R (1)Equipment and materials

ITEM	DESIGNATION
(1)98A32501005000	Pin-Rigging, Nose Gear Wheel Steering Unit
(2)C22646	Safety Pin
(3)	Circuit Breaker Safety Clips
(4)	Hydraulic Fluid Container
(5)	Warning Notices
Referenced Procedures	
- 24-41-00, P. Block 301	AC External Power Control
- 29-10-00, P. Block 301	Main Hydraulic Power - Pressurization/ Depressurization
- 29-14-00, P. Block 301	Hydraulic Reservoir Pressurizing System
- 29-21-00, P. Block 301	Green Auxiliary Power
- 32-51-00, P. Block 501	Steering

R (2)Procedure
R (a)Job set-up
R 1 On panel 4VU :
- make certain that landing gear control lever is in **DOWN** position and prohibit its operation by displaying a warning notice.

R 2 Between First Officer's and Third Occupant's seats :
- make certain that free fall extension control handle is in normal position.

R 3 Depressurize Green hydraulic reservoir (Ref. 29-14-00, P. Block 301) and prohibit its pressurization by displaying a warning notice :
- on panel 429VU to prohibit **APU** starting
- on reservoir pressurization connector.

R 4 Depressurize Green hydraulic system (Ref. 29-10-00, P. Block 301) and prohibit its pressurization by displaying a warning notice :
- on Green hydraulic system ground connectors
- on panel 427VU to prohibit operation of Green electric pumps (**ELEC PUMPS** pushbutton switch).

R 5 Place the ground towing control lever in **DISCONNECT** position and install safety pin C22646.
R (b)Reactivation (Ref. Fig. 901)
R 1 Immobilize rocker (1) on steering unit with rigging pin 98A32501005000.
R 2 Depressurize accumulator
- Remove valve cap (4)
- Connect a hose to union (E)
- Loosen bleed valve nut (3) and recover hydraulic fluid in a container
- When fluid flow stops, disconnect hose from union (E) and tighten bleed valve nut (3).

R 3 Remove blanking plugs from accumulator hydraulic ports.
R 4 Remove blanking plugs from deactivated actuating cylinders.
R 5 Connect rigid pipes to respective ports.

R 6 Bleed
R - Make certain that the following circuit breaker is closed :

PANEL	SERVICE	IDENT.	LOCATION
133VU	HYDRAULIC/NOSE/WHEEL/STRG	1GC	333/T53

R - On center pedestal 9VU make certain that the HP fuel shut-off valve control levers are in OFF position.
R - Open, safety and tag the following circuit breakers :

PANEL	SERVICE	IDENT.	LOCATION
133VU	ENGINES/ENG1/FUEL HP VALVE/CTL	3KC	333/T69
133VU	ENGINES/ENG2/FUEL HP VALVE/CTL	4KC	333/T70

R - Remove safety pin C22646 and place ground towing control lever in NORMAL position.
R - Energize the aircraft electrical network (Ref. 24-41-00, P. Block 301). Make certain that electronics racks ventilation is correct.
R - Pressurize Green auxiliary system (Ref. 29-21-00, P. Block 301).
R - Connect a hose to union (E).
R - Slowly loosen bleed valve nut (3) and bleed hydraulic fluid until it is free from air bubbles.
R - Tighten bleed valve nut (3) and disconnect hose from union (E).
R - Install valve cap (4).
R 7 Remove rigging pin 98A32501005000
R 8 Shut down Green hydraulic system (Ref. 29-21-00, P. Block 301)
R 9 De-energize aircraft electrical network (Ref. 24-41-00, P. Block 301).
R 10 Remove safety clips and tags and close circuit breakers 3KC and 4KC.
R (c)Test
R 1 Pressurize Green hydraulic reservoir (Ref. 29-14-00, P. Block 301).
R 2 Perform operational test of steering system (Ref. 32-51-00, P. Block 501, para. 2).
R 3 Check for hydraulic fluid leakage at accumulator.
R (3)Close-Up
R (a)Remove warning notice indicating cylinder deactivation from the flight compartment.
R (b)Make certain that working area is clean and clear of tools and miscellaneous items of equipment.

R E. Nose Wheel Steering Handwheel Deactivation
Ref. MMEL Sect. 1-32, item 21b. (Nose wheel steering control system)
CAUTION : THIS PROCEDURE IS TO BE USED ACCORDING TO THE REQUIREMENTS OF THE MMEL.

WARNING : CHECK THAT LANDING GEAR GROUND SAFETIES INCLUDING WHEEL CHOCKS ARE IN POSITION.

R (1)Equipment and materials

ITEM	DESIGNATION
(1)	Safety Barriers
(2)	Circuit Breaker Safety Clips
(3)	Access Platform
(4)	Warning Notices
(5)	Square Steel Plates 1.2 m (4 ft.)
(6) Material No. 04-027	Common Greases (Ref. 20-31-00)
Referenced Procedures	
- 09-11-00, P. Block 1	Towing
- 24-41-00, P. Block 301	AC External Power Control
- 29-21-00, P. Block 301	Green Auxiliary Power
- 29-10-00, P. Block 301	Main Hydraulic Power-Pressurization/ Depressurization
- 32-51-00, P. Block 401	Nose Wheel Steering

R (2)Procedure
R (a)For the faulty steering handwheel, remove the corresponding fixed rod between reduction gearbox STA836/FR4 and STA904/FR7 (Ref. 32-51-00, P. Block 401).
R (3)Check
R (a)Position a 1.2 m (4 ft.) square steel plate in front of the nose wheels.
R (b)Apply a thick layer of Material No. 04-027 to the upper surface of the steel plate.
R (c)Put another 1.2 m (4 ft.) square steel plate on top of the greased steel plate.
R (d)Move aircraft and position nose wheels on greased steel plates (Ref. 09-11-00, P. Block 1).
R (e)On panel 4VU
- make certain that landing gear control lever is in DOWN position and prohibit its operation by displaying a warning notice.
R (f)Between the First Officer's and 3rd Occupant's seats
- make certain that landing gear Free Fall extension control handle is in Normal position.
R (g)Make certain that the following circuit breaker is closed :

PANEL	SERVICE	IDENT.	LOCATION
133VU	HYDRAULIC/NOSE/WHEEL/STRG	1GC	333/T53

R (h)Energize the aircraft electrical network (Ref. 24-41-00, P. Block 301). Make certain that electronics racks ventilation system is correct.

R (j)Connect hydraulic ground power cart to Green system (Ref. 29-10-00, P. Block 301).

R (k)Pressurize Green hydraulic system (Ref. 29-10-00, P. Block 301) or (Ref. 29-21-00, P. Block 301).

R (l)On mechanical center pedestal 9VU
- make certain that HP fuel shut off valve control levers are in OFF position.

R (m)Open, safety and tag the following circuit breakers :

PANEL	SERVICE	IDENT.	LOCATION
133VU	ENGINES/ENG1/FUEL HP VALVE/CTL	3KC	333/T69
133VU	ENGINES/ENG2/FUEL HP VALVE/CTL	4KC	333/T70

R (n)Check that Green system is pressurized and make certain that rudder pedals and rudder are in zero position.

R (p)Operate RH and LH pedals and make certain that nose gear wheels and rudder turn to right and left in accordance with input signal.

R (4)Close-up

R (a)Place a temporary placard in flight compartment to warn flight crew that the nose wheel steering handwheel is deactivated.

R (b)Shut down and disconnect hydraulic ground power cart (Ref. 29-10-00, P. Block 301) or shut down Green electric pumps (Ref. 29-21-00, P. Block 301).

R (c)De-energize the aircraft electrical network (Ref. 24-41-00, P. Block 301).

R (d)Remove safety barriers and close access doors.
CAUTION : MAKE CERTAIN THAT THE AREA UNDER THE AIRCRAFT IS CLEAR.

R (e)Move aircraft (Ref. 09-11-00, P. Block 1) and remove greased steel plates.

R (f)Remove safety clips and tags and close circuit breakers 3KC and 4KC.

R (g)Make an entry in the aircraft technical log.

R F. Nose Wheel Steering Handwheel Reactivation
R
R Ref. MMEL Sect. 1-32, item 21b. (Nose wheel steering control system)
R CAUTION : THIS PROCEDURE IS TO BE USED ACCORDING TO THE REQUIREMENTS OF THE
R MMEL.

R WARNING : CHECK THAT LANDING GEAR GROUND SAFETIES INCLUDING WHEEL CHOCKS
R ARE IN POSITION.

R (1)Equipment and materials

ITEM	DESIGNATION
(1)	Access Platform
Referenced Procedures	
- 32-51-00, P. Block 401	Nose Wheel Steering
- 32-51-00, P. Block 501	Steering

R (2)Procedure
R (a)Install the fixed rod corresponding to the handwheel deactivated between reduction gearbox STA836/FR4 and STA904/FR7 (Ref. 32-51-00, P. Block 401).
R (b)Remove the temporary placard in the flight compartment.
R (3)Test
R (a)Carry out a functional test of steering hydraulic system (Ref. 32-51-00, P. Block 501).

STEERING CONTROL COUPLER (1285) REMOVAL/INSTALLATION

WARNING : CHECK THAT THE LANDING GEAR GROUND SAFETIES INCLUDING WHEEL CHOCKS ARE IN POSITION.

BEFORE APPLYING OR RELIEVING HYDRAULIC SYSTEM PRESSURE, MAKE CERTAIN THAT THE TRAVEL RANGES OF THE CONTROL SURFACES ARE CLEAR.

BEFORE PRESSURIZING HYDRAULIC SYSTEMS, CHECK THAT ALL CONTROLS ARE SET TO CORRESPOND WITH THE ACTUAL POSITION OF THE SERVICES THEY OPERATE.

BEFORE POWER IS SUPPLIED TO THE AIRCRAFT, MAKE CERTAIN THAT ELECTRICAL CIRCUITS UPON WHICH WORK IS IN PROGRESS ARE ISOLATED.

BEFORE PRESSURIZING HYDRAULIC SYSTEMS, MAKE CERTAIN THAT HYDRAULIC SYSTEM UNDER MAINTENANCE HAS BEEN ISOLATED.

1. Equipment and Materials

	ITEM	DESIGNATION
R	A.	Safety Barriers
R	B.	Circuit Breaker Safety Clips
R	C. 98A32501002000	Pin-Rigging, Wheel Steering Control
R	D. 98A32501006000	Pin-Rigging, Wheel Steering Control
R	E. 98A27901002000	Pin-Rigging, Rudder Control
R	F. C22646	Safety Pin
R	G.	Safety Barriers
R	H.	Lockwire-Corrosion Resistant Steel, Dia 0.8 mm (0.032 in.)
R	J.	Access Platform 2,60 m (8 ft. 7 in.)
R	K.	Hydraulic Fluid Container
R	L.	Circuit Breaker Safety Clips
R	M.	Blanking Plugs
R	N. Material No. 11-002	Cleaning Agents (Ref. 20-31-00)
	Referenced Procedures	
	- 12-12-29, P. Block 1	Hydraulics
	- 29-10-00, P. Block 301	Main Hydraulic Power - Pressurization/ Depressurization
	- 29-14-00, P. Block 301	Hydraulic Reservoir Pressurizing System
	- 32-51-00, P. Block 501	Steering
	- 32-12-11, P. Block 301	Main Gear Main Door - (Ground Door(s) Opening)

2. Procedure

A. Job Set-Up
(1)On panel 4VU
- make certain that landing gear control lever is in DOWN position and prohibit its operation by displaying a warning notice.

(2)Between the First Officier's and Flight Engineer's seats
- make certain that landing gear Free Fall extension control handle is in Normal position.

(3)Open, safety and tag the following circuit breaker :

PANEL	SERVICE	IDENT.	LOCATION
133VU	HYDRAULIC/NOSE/WHEEL/STRG	1GC	333/T53

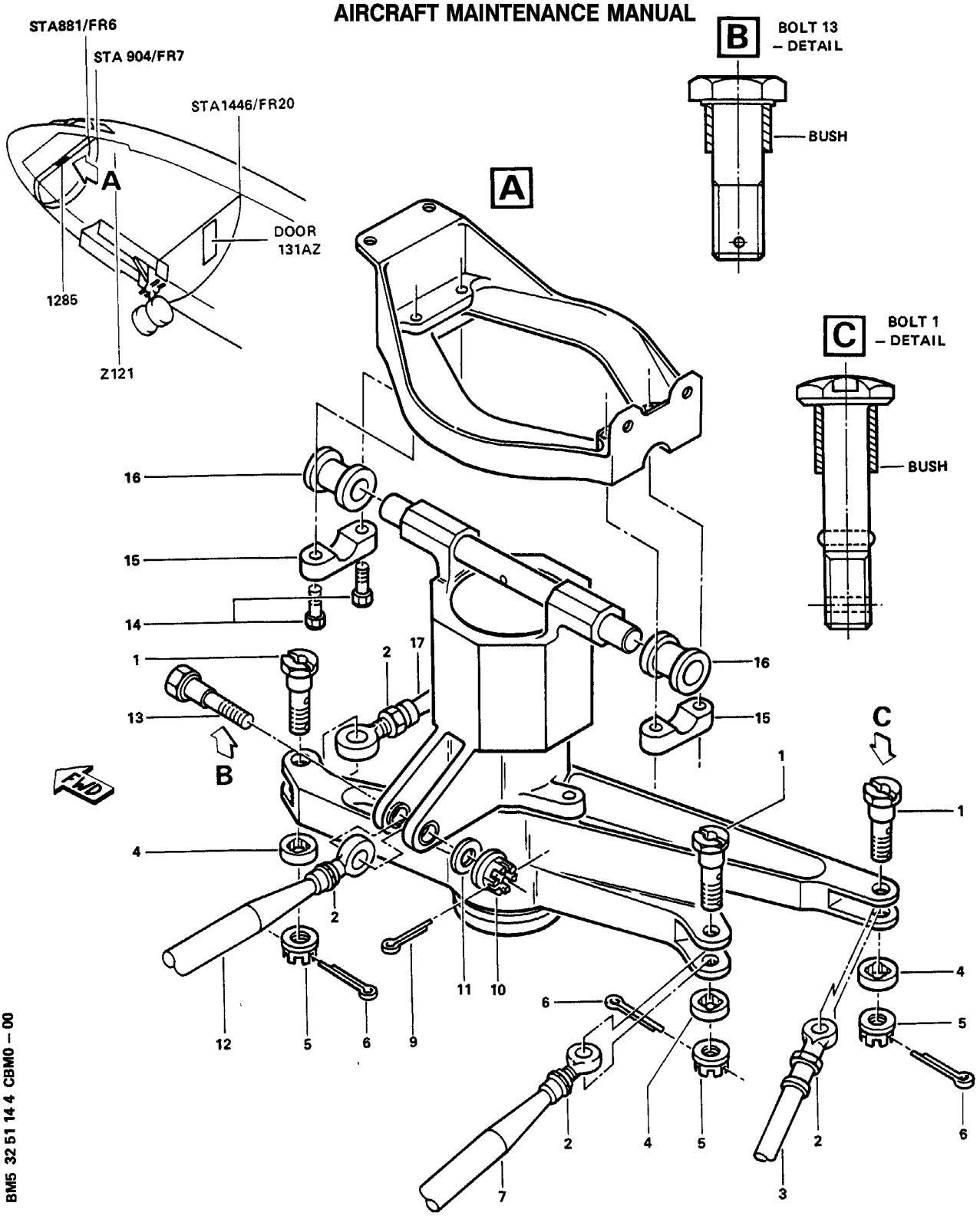
(4)Position access platform
(5)Position safety barriers prohibiting access to door travel ranges.
WARNING : MAKE CERTAIN THAT DOOR TRAVEL RANGES ARE CLEAR
(6)Open gear doors (Ref. 32-12-11, P. Block 301)
WARNING : WHEN DOORS ARE OPEN MAKE CERTAIN THAT SAFETY COLLARS ARE POSITIONED ON DOOR ACTUATING CYLINDERS.
(7)Depressurize Green hydraulic reservoir (Ref. 29-14-00, P. Block 301) and prohibit its pressurization by displaying a warning notice :
- on panel 429VU to prohibit APU starting
- on reservoir pressurization connectors.

(8)Depressurize Green hydraulic system (Ref. 29-10-00, P. Block 301) and prohibit its pressurization by displaying a warning notice :
- on Green hydraulic system ground connectors
- on panel 427VU to prohibit operation of Green electric pumps (ELEC PUMPS pushbutton switch).

(9)On nose gear leg, on interphone box 3WC, place the ground towing control lever in Towing position, and lock with safety pin C22646.

B. Removal
(Ref. Fig. 401)
(1)Open access door 131AZ.
(2)Not applicable
(3)Mark and disconnect rods (7) and (17) and spring rod (3) from coupler levers.
Remove cotter pins (6) and remove nuts (5) washers (4) and bolts (1) complete with bushes. Attach rods to nearby component.
(4)Disconnect strut (12) from coupler.
Remove cotter pin and remove nut (10), washer (11), and bolt (13) complete with bush. Attach strut to a nearby component.
(5)Cut and remove lockwire and remove screws (14) on structural support.
(6)Remove the coupler and mark and retain support half-bearings (15) and bushes (16) for reinstallation.

C. Preparation of Replacement Component
(1)Depreserve the replacement coupler, clean with Material No. 11-002 and dry with filtered compressed air.



Steering Control Coupler - Attachment
Figure 401

D. Installation

(Ref. Fig. 402)

(1)Install bushes (16) on coupler trunnions as per marking made during removal.

(2)Install the coupler on stuctural support with half-bearings (15) and screws (14).

CAUTION : MAKE CERTAIN THAT BOLT (13) IS EQUIPPED WITH ITS BUSH.

(3)Connect strut (12), with bolt (13) complete with bush, washer (11) nut (10) and safety with cotter pin (9).

(4)Tighten screws (14) and safety with lockwire.

(5)Lock the two levers on the coupler with rigging pin 98A32501006000.

(6)Lock the two reduction gear boxes with rigging pin 98A32501002000.

(7)Lock the lever at the end of spring rod on steering control tension regulator with rigging pin 98A27901002000.

WARNING : DO NOT CROSS-CONNECT RODS (7) AND (17).
LOOKING FORWARD :
- ROD (7) FROM CAPTAIN'S HANDWHEEL, IS CONNECTED TO AFT END OF COUPLER LOWER LEVER.
- ROD (17), FROM FIRST OFFICER'S HANDWHEEL, IS CONNECTED TO FORWARD END OF COUPLER LOWER LEVER.

CAUTION : MAKE CERTAIN THAT BOLTS (1) ARE EQUIPPED WITH THEIR BUSHES.

(8)Connect rods (7) and (17) and spring rod (3) to coupler levers with bolts (1) complete with bushes, washers (4) and nuts (5). Safety nuts (5) with cotter pins.

NOTE : Make certain that bolts (1) can be readily installed.
Make certain that spring rod (3) is in neutral position ; neither extended nor compressed.

NOTE : If bolts (1) cannot be readily installed, adjust length of rods as follows :
- Loosen locknuts (2) turn rod end fittings to achieve required length, tighten and safety locknuts (2)
- Make certain that end fitting thread is correctly engaged : thread visible through witness hole.
Connect rods (7) and (17) and spring rod (3) to coupler levers with bolts (1) complete with bushes, washers (4) and nuts (5). Safety nuts (5) with cotter pins (6).

(9)Remove rigging pins after making certain that they slide freely.

R E. Test

R (1)Perform functional test of steering hydraulic system

R (Ref. 32-51-00, P. Block 501).

R F. Close-Up

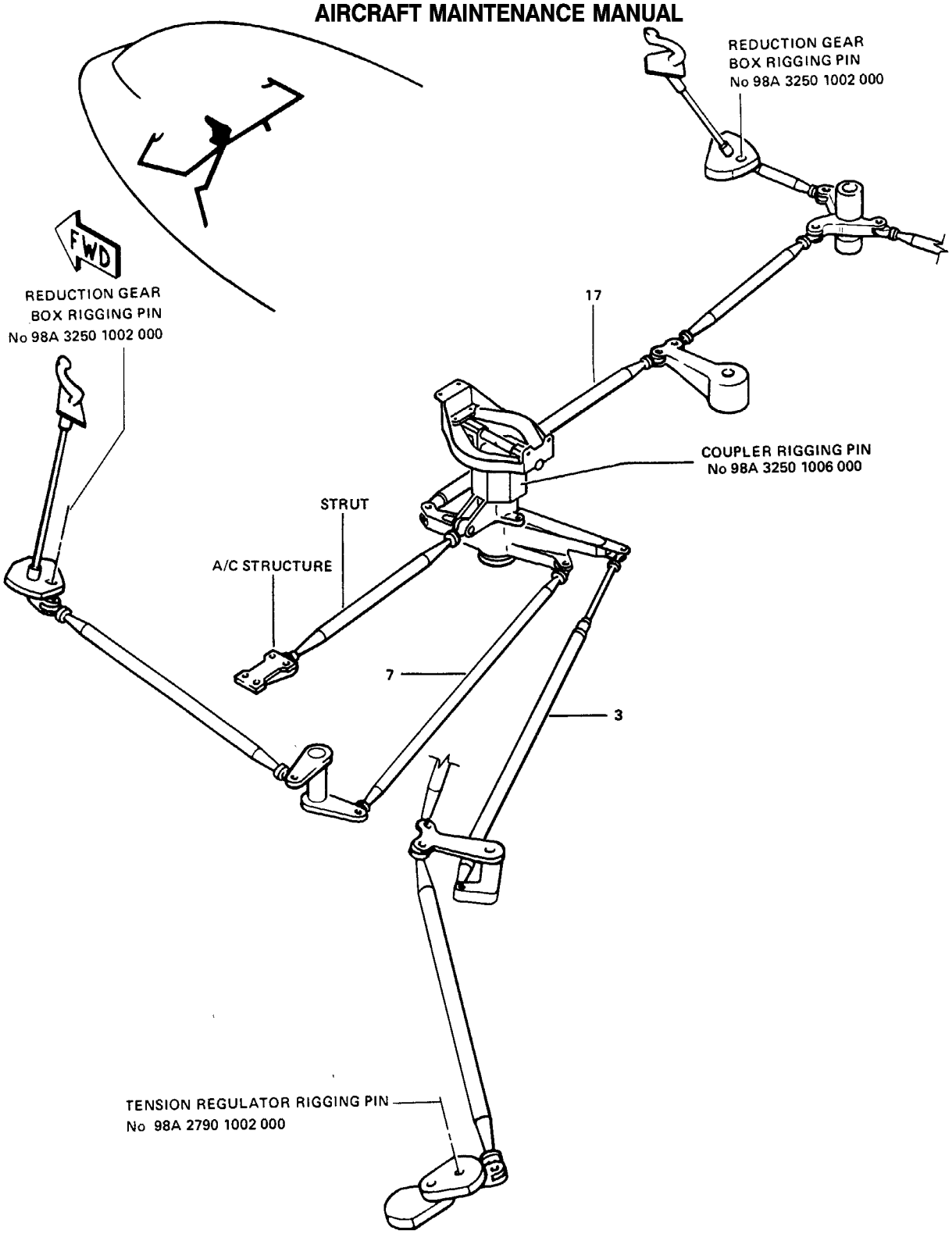
(1)Not applicable.

(2)Make certain that working area is clean and clear of tools and miscellaneous items of equipment.

(3)Pressurize hydraulic reservoirs (Ref. 29-14-00, P. Block 301).

(4)Remove safety clip and tag and close circuit breaker 1GC.

(5)On interphone box, remove safety pin C22646 and make certain that the



Steering Control Coupler - Adjustment
Figure 402

towing lever is returned to normal position.

WARNING : MAKE CERTAIN THAT DOOR TRAVEL RANGES ARE CLEAR.

(6) Close landing gear doors (Ref. 32-12-11, P. Block 301).
(7) Replenish hydraulic reservoirs as necessary (Ref. 12-12-29, P. Block 1).
(8) Remove warning notices.
(9) Close access doors, remove access platform and safety barriers.
(10) Remove all ground handling and maintenance equipment, standard and special tools, replenishing equipment, all access equipment and miscellaneous items.

R WARNING : CHECK THAT THE LANDING GEAR GROUND SAFETIES INCLUDING WHEEL CHOCKS ARE IN POSITION.
BEFORE APPLYING OR RELIEVING HYDRAULIC SYSTEM PRESSURE, MAKE CERTAIN THAT THE TRAVEL RANGES OF THE CONTROL SURFACES ARE CLEAR.
BEFORE PRESSURIZING HYDRAULIC SYSTEMS, CHECK THAT ALL CONTROLS ARE SET TO CORRESPOND WITH THE ACTUAL POSITION OF THE SERVICES THEY OPERATE.
WARNING : BEFORE POWER IS SUPPLIED TO THE AIRCRAFT MAKE CERTAIN THAT ELECTRICAL CIRCUITS UPON WHICH WORK IS IN PROGRESS ARE ISOLATED.
WARNING : BEFORE PRESSURIZING HYDRAULIC SYSTEMS, MAKE CERTAIN THAT HYDRAULIC SYSTEM UNDER MAINTENANCE HAS BEEN ISOLATED.

1. Equipment and Materials

ITEM	DESIGNATION
A.	Safety Barriers
B.	Warning Notices
C.	Blanking Plugs/Caps
D.	Hydraulic Fluid Container
E.	Circuit Breaker Safety Clips
F.	Access Platform (2.60 m) (8 ft. 7in.)
G. Material No. 11-002	Cleaning Agents (Ref. 20-31-00)
Referenced Procedures	
- 12-12-29, P. Block 1	Hydraulics
- 29-10-00, P. Block 301	Main Hydraulic Power - Pressurization/Depressurization
- 32-12-11, P. Block 301	Main Gear Main Door - (Ground Door(s) Opening)
- 32-22-11, P. Block 301	Nose Gear Main Door - (Ground Door(s) Opening)
- 32-51-00, P. Block 501	Steering

2. Procedure

A. Job Set-Up
(1)On panel 4VU
- make certain that landing gear control lever is in DOWN position and prohibit its operation by displaying a warning notice.

(2)Between First Officer's and Third Occupant's seats
- make certain that landing gear Free Fall extension control handle is in Normal position.

(3)On nose landing gear leg, on interphone box 3WC place towing control lever in towing position and install safety pin C22646.
(4)Position safety barriers prohibiting access to landing gear door travel ranges.
(5)Install access platform.
WARNING : MAKE CERTAIN THAT THE DOOR TRAVEL RANGES ARE CLEAR.
(6)Open left main gear main door (Ref. 32-12-11, P. Block 301) and nose gear doors (32-22-11, P. Block 301).
WARNING : WHEN DOORS ARE OPEN MAKE CERTAIN THAT SAFETY COLLARS

ARE POSITIONED ON DOOR ACTUATING CYLINDERS.

(7)Depressurize Green hydraulic system (Ref. 29-10-00, P. Block 301) and prohibit its pressurization by displaying a warning notice :
- on Green hydraulic system ground connectors
- on panel 427VU to prohibit operation of Green electric pumps (ELEC PUMPS pushbutton switch).

(8)Depressurize Green hydraulic reservoir (Ref. 29-14-00, P. Block 301) and prohibit its pressurization by displaying a warning notice.
- on panel 429VU to prohibit APU starting
- on reservoir pressurization connector.

(9)Open, safety and tag the following circuit breaker :

PANEL	SERVICE	IDENT.	LOCATION
133VU	HYDRAULIC/NOSE/WHEEL/STRG	1GC	333/T53

(10)Position hydraulic fluid container.

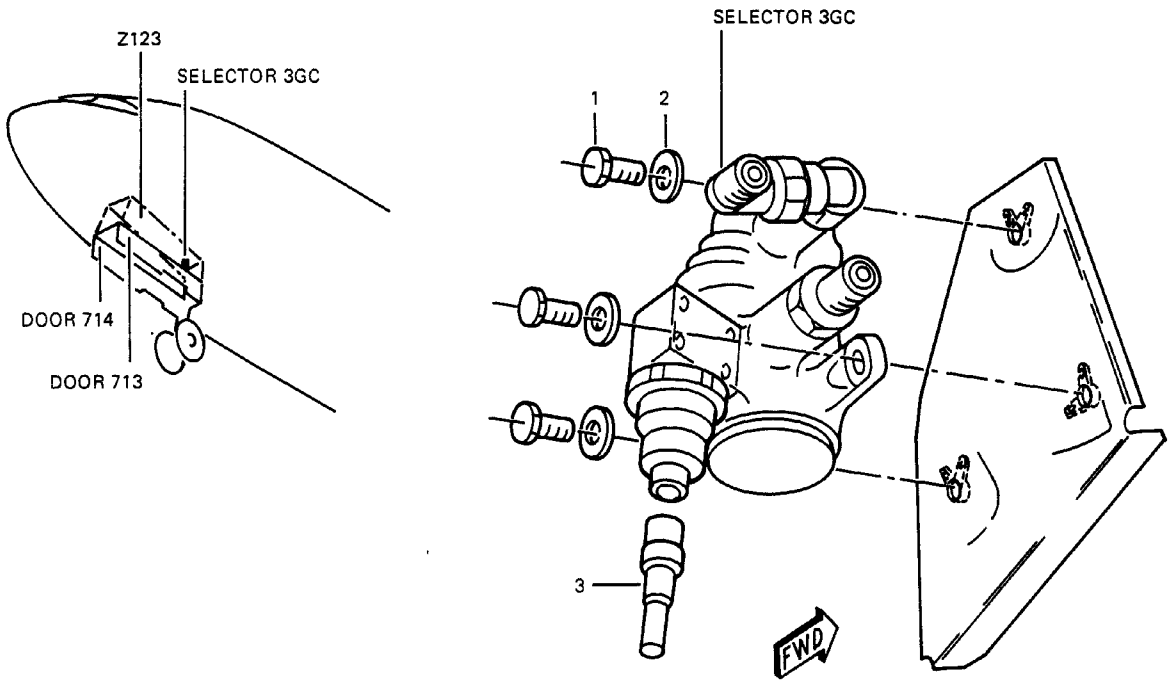
B. Removal
(Ref. Fig. 401)
(1)Disconnect and protect electrical connector (3).
(2)Mark and disconnect hydraulic lines and blank open line ends.
(3)Cut and remove lockwire, remove screws (1) and washers (2).
(4)Remove selector.

C. Preparation of Replacement Component
NOTE : The replacement selector is filled with aircraft system hydraulic fluid (Ref. 20-31-00).
(1)Clean replacement component with Material No.11-002 and dry with filtered compressed air.
(2)If replacement component is supplied without hydraulic connectors retain connectors from removed component, clean and check them for correct condition and install in replacement component together with new seals.

D. Installation
(1)Position selector.
(2)Install screws (1) and washers (2) Wirelock screws (1).
(3)Remove blanking plugs and connect hydraulic lines.
(4)Remove protective cap and connect electrical connector (3).

E. Test
Perform operational test of steering control supply system (Ref. 32-51-00, P. Block 501).
Check selector for leakage during initial pressurization and upon completion of tests.

F. CLose-Up
(1)Make certain that working area is clean and clear of tools and miscellaneous items of equipment.
(2)Remove hydraulic fluid container.
(3)Pressurize hydraulic reservoirs (Ref. 29-14-00, P. Block 301).



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Nose Wheel Steering - Hydraulic System Selector
Figure 401

(4)Remove safety clip and tag and close circuit breaker 1GC.
(5)Remove safety pin C22646 and place towing control lever in "connected" position.
WARNING : MAKE CERTAIN THAT THE DOOR TRAVEL RANGES ARE CLEAR.
(6)Close landing gear doors (Ref. 32-12-11, P. Block 301 and 32-22-11,

SWIVEL FITTING (1482) - REMOVAL/INSTALLATION

R WARNING : CHECK THAT THE LANDING GEAR GROUND SAFETIES INCLUDING WHEEL CHOCKS ARE IN POSITION.

BEFORE APPLYING OR RELIEVING HYDRAULIC SYSTEM PRESSURE, MAKE CERTAIN THAT THE TRAVEL RANGES OF THE CONTROL SURFACES ARE CLEAR.

BEFORE PRESSURIZING HYDRAULIC SYSTEMS. CHECK THAT ALL CONTROLS ARE SET TO CORRESPOND WITH THE ACTUAL POSITION OF THE SERVICES THEY OPERATE.

BEFORE POWER IS SUPPLIED TO THE AIRCRAFT, MAKE CERTAIN THAT ELECTRICAL CIRCUIT UPON WHICH WORK IS IN PROGRESS ARE ISOLATED.

BEFORE PRESSURIZING HYDRAULIC SYSTEMS, MAKE CERTAIN THAT HYDRAULIC SYSTEM UNDER MAINTENANCE HAS BEEN ISOLATED.

1. Equipment and Materials

ITEM	DESIGNATION
A. 99A29001006000	Unit-Topping Up, Hydraulic Tank (Hand Operated)
B. 97A29102035000	Connector - Pressurizing, Hydraulic Tank
C. 97A29102062000	Connector - Depressurizing, Hydraulic Tank
D.	Circuit Breaker Safety Clips
E.	Warning Notice
F.	Hydraulic Fluid Container
G.	Corrosion Resistant Lockwire Dia. 0.8 mm (0.032 in.)
H.	Safety Barriers
J.	Blanking Plugs
K.	Access Platform 2.6 m (8 ft. 7 in.)
L. Material No. 11-002	Cleaning Agents (Ref. 20-31-00)
Referenced Procedures	
- 12-12-29, P. Block 1	Hydraulics
- 29-10-00, P. Block 301	Main Hydraulic Power - Pressurization/ Depressurization
- 29-14-00, P. Block 301	Hydraulic Reservoir Pressurizing System
- 32-12-11, P. Block 301	Main Gear Main Door - (Ground Door(s) Opening)
- 32-22-11, P. Block 301	Nose Gear Main Door - (Ground Door(s) Opening)
- 32-51-00, P. Block 501	Steering

2. Procedure

A. Job Set-Up
(1)On panel 4VU
- make certain that landing gear control lever is in DOWN position and prohibit its operation by displaying a warning notice.

(2)Between First Officer's and Third Occupant's seats
- make certain that landing gear Free Fall extension control handle is in Normal position.

(3)Open, safety and tag the following circuit breaker.

PANEL	SERVICE	IDENT.	LOCATION
133VU	HYDRAULIC/NOSE/WHEEL/STRG	1GC	333/T53

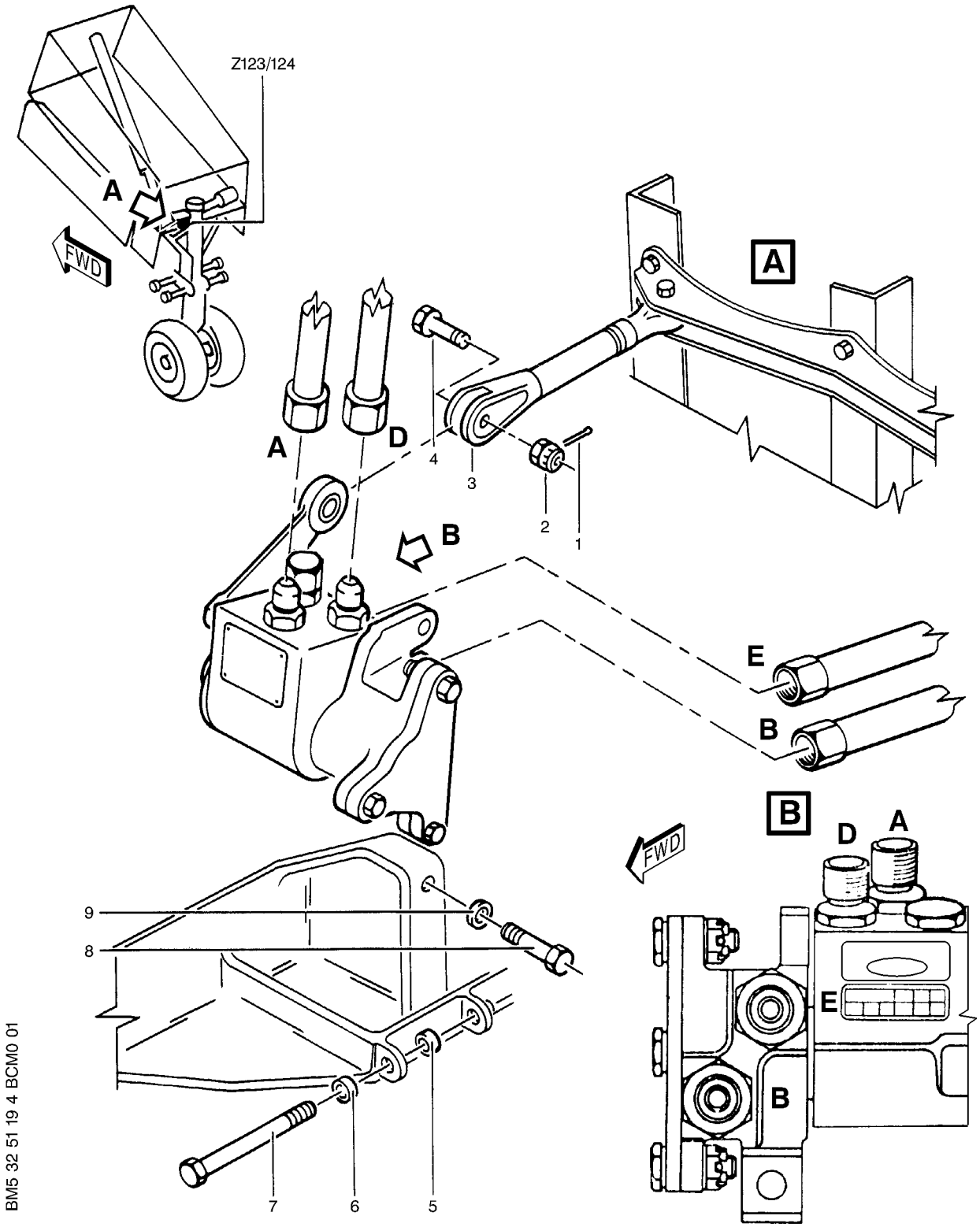
(4)Position access platform.
(5)Position safety barriers prohibiting access to gear door travel ranges.
WARNING : MAKE CERTAIN THAT THE DOOR TRAVEL RANGES ARE CLEAR.
(6)Open nose gear doors and LH main door (Ref. 32-12-11, P. Block 301 and 32-22-11, P. Block 301).
WARNING : WHEN DOORS ARE OPEN MAKE CERTAIN THAT SAFETY COLLARS ARE POSITIONED ON DOOR ACTUATING CYLINDERS.
(7)Depressurize Green hydraulic reservoir (Ref. 29-14-00, P. Block 301) and prohibit its pressurization by displaying a warning notice.
- on panel 429VU to prohibit APU starting.
- on reservoir pressurization connector.

(8)Depressurize Green system (Ref. 29-10-00, P. Block 301) and prohibit its pressurization by displaying a warning notice :
- on Green system ground connectors.
- on panel 427VU to prohibit operation of Green electric pumps (ELEC PUMPS pushbutton switch).

(9)On interphone box 3WC, place towing control lever in Towing position and install safety pin C22646.
(10)Position hydraulic fluid container.

B. Removal
(Ref. Fig. 401)
(1)Mark and disconnect hydraulic lines and blank open line ends.
(2)Disconnect link rod (3) from swivel fitting
Remove cotter pin (1) and nut (2) and bolt (4).
(3)Cut and remove lockwire and remove screw (8) and washer (9)
(4)Cut and remove lockwire and remove screw (7), washer (6) and retain washer (5).

C. Preparation of Replacement Component
NOTE : The replacement swivel fitting is filled with aircraft system hydraulic fluid (Ref. 20-31-00)
(1)Depreserve swivel fitting.
(2)Clean replacement component with Material No.11-002 and dry with filtered compressed air.
(3)If replacement component is supplied without hydraulic connectors etc...,



Swivel Fitting
Figure 401

R

recover the connectors installed in the removed component, clean and check them for correct condition and install in replacement component using new seals.

D. Installation

R (1)Install swivel fitting. Insert washer (5) between swivel fitting and its support.
Install screw (7) with washer (6).
Install screw (8) with washer (9).
Wirelock screws (7) and (8).
(2)Connect link rod (3) to swivel fitting with bolt (4) and nut (2). Tighten nut (2) and safety with cotter pin (1).
(3)Connect hydraulic lines according to marking made during removal.

E. Tests

(1)Carry out operational test of steering control supply system. (Ref. 32-51-00, P. Block 501). During this test, check for hydraulic leakage at swivel fitting.

F. Close-Up

(1)Remove hydraulic fluid container.
(2)Make certain that working area is clean and clear of tools and miscellaneous items of equipment.
(3)Pressurize hydraulic reservoirs (Ref. 29-14-00, P. Block 301).
(4)Remove safety clip and tag and close circuit breaker 1GC.
(5)Remove safety pin C22646 and make certain that control lever returns to Normal position.
WARNING : MAKE CERTAIN THAT DOOR TRAVEL RANGES ARE CLEAR.
(6)Close nose gear doors and LH main gear door (Ref. 32-12-11, P. Block 301 and 32-22-11, P. Block 301).
(7)Replenish hydraulic reservoirs if necessary (Ref. 12-12-29, P. Block 1).
(8)Remove warning notices.
(9)Close access doors, remove access platform and safety barriers.
(10)Remove all ground handling and maintenance equipment standard and special tools, together with ground power and replenishing equipment, all access equipment and miscellaneous items.

R WARNING : CHECK THAT THE LANDING GEAR GROUND SAFETIES INCLUDING WHEEL CHOCKS ARE IN POSITION.
BEFORE APPLYING OR RELIEVING HYDRAULIC SYSTEM PRESSURE, MAKE CERTAIN THAT THE TRAVEL RANGES OF THE CONTROL SURFACES ARE CLEAR.
BEFORE PRESSURIZING HYDRAULIC SYSTEMS, CHECK THAT ALL CONTROLS ARE SET TO CORRESPOND WITH THE ACTUAL POSITION OF THE SERVICES THEY OPERATE.
BEFORE POWER IS SUPPLIED TO THE AIRCRAFT MAKE CERTAIN THAT ELECTRICAL CIRCUITS UPON WHICH WORK IS IN PROGRESS ARE ISOLATED.
BEFORE PRESSURIZING HYDRAULIC SYSTEMS, MAKE CERTAIN THAT HYDRAULIC SYSTEM UNDER MAINTENANCE HAS BEEN ISOLATED.

1. Equipment and Materials

ITEM	DESIGNATION
A.	Safety Barriers
B. 98A32501005000	Pin-Rigging, Wheel Steering Control
C.	Wheel Chocks
D.	Pressure Gages 0 to 250 bars (0 to 3625 psi)
E.	Circuit Breaker Safety Clips
F.	Hydraulic Fluid Container
G.	Blanking Plugs
H.	Access Platform 2 m - 2.60 m (6 ft. 7 in. - 8 ft. 7 in.)
J. C22646	Safety Pin
K.	Warning Notices
L. Material No. 09-001	Sealants (Ref. 20-31-00)
M. Material No. 11-002	Cleaning Agents (Ref. 20-31-00)
Referenced Procedures	
- 07-12-00, P. Block 1	Jacking For Wheel Change
- 12-12-29, P. Block 1	Hydraulics
- 24-41-00, P. Block 301	AC External Power Control
- 29-10-00, P. Block 301	Main Hydraulic Power - Pressurization/Depressurization
- 29-14-00, P. Block 301	Hydraulic Reservoir Pressurizing System
- 29-21-00, P. Block 301	Green Auxiliary Power
- 32-12-11, P. Block 301	Main Gear Main Door - (Ground Door(s) Opening)
- 32-22-15, P. Block 401	Nose Gear Leg Door
- 32-51-00, P. Block 501	Steering

2. Procedure

A. Job Set-Up
(1)On panel 4VU
- make certain that landing gear control lever is in **DOWN** position and prohibit its operation by displaying a warning notice.

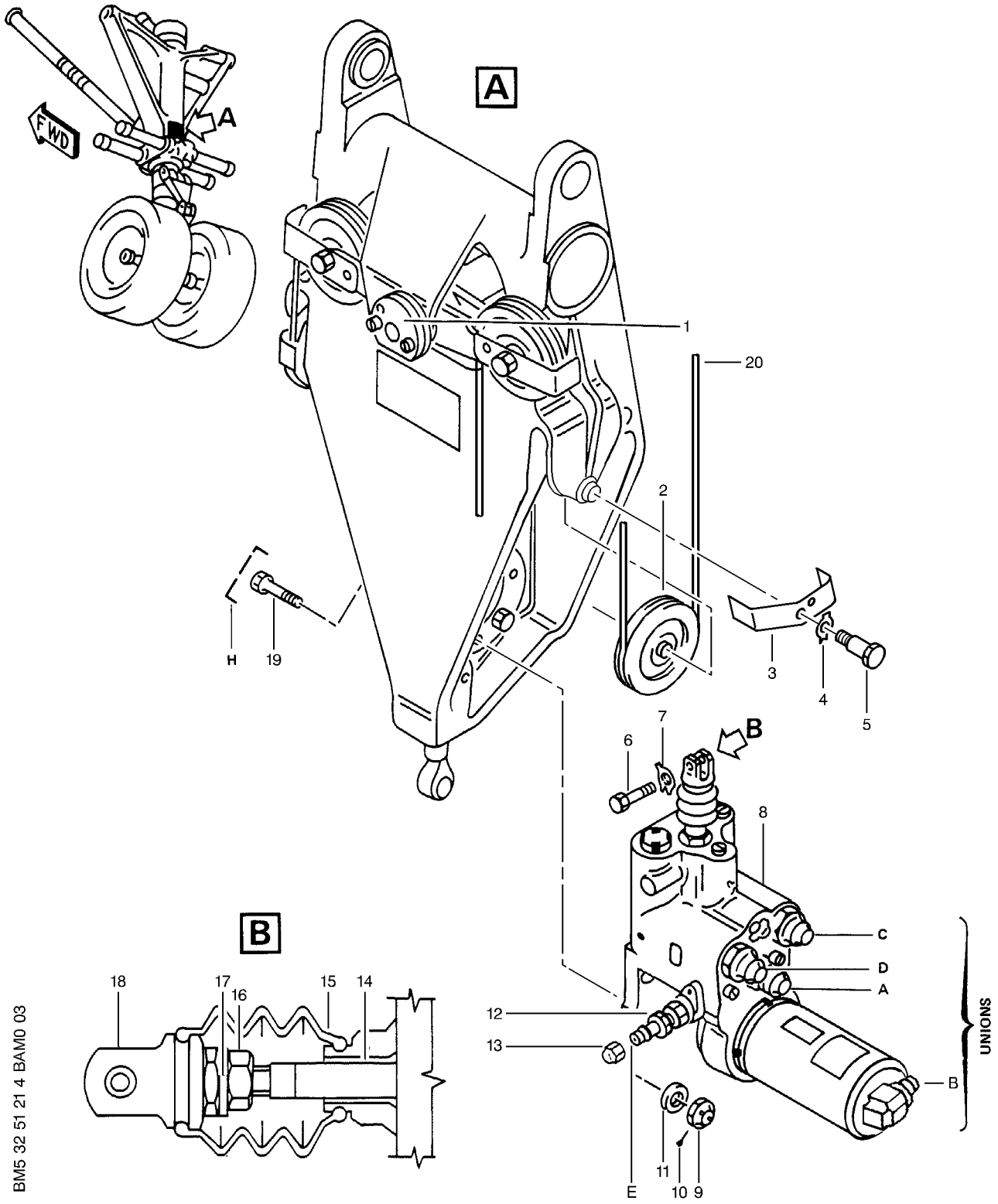
(2)Between First Officer's and Third Occupant's seats
- make certain that Free Fall extension control handle is in Normal position and prohibit its operation by displaying a warning notice.

(3)Open, safety and tag the following circuit breaker :

PANEL	SERVICE	IDENT.	LOCATION
133VU	HYDRAULIC/NOSE/WHEEL/STRG	1GC	333/T53

(4)Position access platform.
(5)Position safety barriers prohibiting access to main gear door travel ranges.
WARNING : MAKE CERTAIN THAT THE DOOR TRAVEL RANGES ARE CLEAR.
(6)Open left main gear door (Ref. 32-12-11, P. Block 301).
WARNING : WHEN DOORS ARE OPEN MAKE CERTAIN THAT SAFETY COLLARS ARE POSITIONED ON DOOR ACTUATING CYLINDERS.
R (7)Depressurize Green hydraulic system (Ref. 29-10-00, P. Block 301) and
R prohibit its pressurization by displaying a warning notice :
R - on Green hydraulic system ground connectors
R - on panel 427VU to prohibit operation of Green electric pumps (ELEC
R PUMPS pushbutton switch).
R (8)Depressurize Green hydraulic reservoir (Ref. 29-14-00, P. Block 301) and
R prohibit its pressurization by displaying a warning notice :
R - on panel 429VU to prohibit APU starting,
R - on reservoir pressurization connector.
(9)On interphone box 3WC, place the ground towing control lever in "Towing" position and install safety pin C22646.
(10)Make certain that wheel chocks are in position at main gear wheels.
(11)Lift nose gear wheels clear of ground using wheel changing jack (Ref. 07-12-00, P. Block 1).
(12)Remove nose gear leg door (Ref. 32-22-15, P. Block 401).
(13)Where necessary, free electrical cables that may interfere with valve removal.

B. Removal
(Ref. Fig. 401)
NOTE : Remove rubber protective coating using a spatula to avoid damaging component surface finish.
(1)Immobilize rocker (1) on steering unit with rigging pin 98A32501005000
(2)Drain the accumulator
(a)Remove valve cap (13).
(b)Connect a hose to union (E), loosen bleed valve nut (12) to open bleed valve and recover hydraulic fluid.
(c)When fluid flow stops, disconnect hose from union (E), and tighten bleed valve nut (12).



Steering Valve
Figure 401

R

(3)Mark and disconnect hydraulic connections
(a)Mark and disconnect hydraulic supply and return lines and blank open line ends (ports A and B).
(b)Mark and disconnect pressure delivery lines (ports C and D) and blank open line ends.
(c)Where necessary, disconnect rigid pipes that may interfere with removal operation and blank open line ends.
(4)Remove valve
R (a)Remove floor panel PF in zone 122. Cut turnbuckle lockwires at STA1236(FR15a) and slacken off steering control cable (20).
(b)Unsafety and remove screw (5).
(c)Remove and discard lockwasher (4).
(d)Remove cable protective cover (3).
(e)Remove pulley (2).
(f)Cut and remove lockwire, remove bolt (6) and retain lockwasher (7) for installation.
(g)Remove cotter pins (10).
(h)Remove nuts (9) and retain washers (11).
(j)Remove valve (8) and retain bolts (19).

C. Preparation of Replacement Component
NOTE : The replacement valve is filled with aircraft system hydraulic fluid (Ref. 20-31-00).
(1)Depreserve the replacement valve. Clean with Material No. 11-002 and dry with filtered compressed air.
(2)Clean all removed components with Material No. 11-002 and dry with filtered compressed air.
(3)If replacement component is supplied without hydraulic unions etc..., recover the unions installed on the removed component, clean and check them for correct condition and install on replacement component using new seals.

D. Installation
(1)Install valve (8) on steering unit.
(a)Position valve and align with attachment bores.
(b)Install bolts (19).
(c)Install washers (11).
(d)Install nuts (9), TORQUE to between 1.1 and 1.7 m.daN (8.110 to 12.535 lbf.ft.). Safety with cotter pins (10).
(e)Install control cable (20) on pulley (2) and install pulley (2), cable protective cover (3), new lockwasher (4) and screw (5). TORQUE screw (5) to between 0.25 and 0.30 m.daN (22 and 26.5 lbf.in). Safety screw by bending lockwasher tabs.
(f)Make certain lever (1) is immobilized on steering unit with rigging pin 98A3250100500.
(g)Adjust control cable (20) tension (Ref. 32-51-00, P. Block 501).
R Install floor panel PF in zone 122.
(2)Adjust steering valve
NOTE : The purpose of this test is to align steering valve hydraulic "zero" with lever mechanical "zero".
(a)Make certain lever (1) is immobilized on steering unit with rigging pin

No.98A32501005000.
(b)Expose fork end (18)-to-slide valve (14) linkage by pulling bellows (15) downwards.
(c)Prevent rotation of slide valve (14), cut lockwire and loosen locknut (16).
(d)Disengage washer (17) and rotate slide valve (14) so as to obtain alignment of fork ends with spherical fittings. Install bolt (6).
(e)Prevent rotation of slide valve (14), install washer (17) and TORQUE locknut (16) to between 0.25 and 0.30 m.daN (22 and 26.5 lbf.in.).
(f)Safety locknut (16) with lockwire.
(g)Position bellows (15).
(h)Install lockwasher (7) and bolt (6). TORQUE to between 0.25 and 0.30 m.daN (22 and 26.5 lbf.in.).
(j)Safety bolt (6) with lockwasher (7) and lockwire.
(k)Connect supply and return lines to corresponding unions.
WARNING : MAKE CERTAIN THAT DOOR TRAVEL RANGE IS CLEAR.
(l)Close left Main landing gear door (Ref. 32-12-11, P. Block 301).
(m)Remove safety clip and tag and close circuit breaker 1GC.
(n)On CENTER CONTROL PEDESTAL 9VU, make certain that the HP fuel shut-off valve control levers are in OFF position.
(p)Open safety and tag the following circuit breakers :

PANEL	SERVICE	IDENT.	LOCATION
133VU	ENGINES/ENG1/FUEL HP VALVE/CTL	3KC	333/T69
133VU	ENGINES/ENG2/FUEL HP VALVE/CTL	4KC	333/T70

(q)On interphone box 3WC, remove safety pin C22646 and make certain that control lever returns to Normal position.
(3)Bleed the valve
(a)Energize the aircraft electrical network (ref. 24-41-00, P. Block 301). Make certain that electronics racks ventilation is correct.
(b)Pressurize Green auxiliary system by means of Green electric pumps (Ref. 29-21-00, P. Block 301).
(c)Connect a hose to union (E).
(d)Slowly loosen bleed valve nut (12) to open valve.
Bleed hydraulic fluid until it is free from air bubbles.
(e)Tighten bleed valve nut (12) and disconnect hose from union (E).
(f)Install valve cap (13).
(g)Remove rigging pin 98A32501005000.
(h)Remove safety clips and tags and close circuit breakers 3KC and 4KC.
CAUTION : MAKE CERTAIN THAT AREA UNDER THE AIRCRAFT IS CLEAR.
(j)Lower the aircraft onto its wheels (Ref. 07-12-00, P. Block 1).

E. Test
(1)Perform functional test of steering hydraulic system (Ref. 32-51-00, P. Block 501).
During test, check for hydraulic fluid leakage at steering valve.

F. Close-Up
(1)Make certain that working area is clean and clear of tools and miscel-

laneous items of equipment.
(2)Secure electrical cables.
(3)Install nose gear leg door (Ref. 32-22-15, P. Block 401).
(4)Coat areas identified "H" with Material No. 09-001.
(5)Check fluid level in hydraulic reservoirs, top up if required (Ref. 12-12-29, P. Block 1).
CAUTION : MAKE CERTAIN THAT AREA UNDER THE AIRCRFAT IS CLEAR.
(6)Remove warning notices.
(7)Close access doors, remove access platform and safety barriers.
(8)Remove all ground handling and maintenance equipment, standard and special tools, together with ground power and replenishing equipment, all access equipment and miscellaneous items.

WARNING : CHECK THAT THE LANDING GEAR GROUND SAFETIES INCLUDING WHEEL CHOCKS ARE IN POSITION.

BEFORE APPLYING OR RELIEVING HYDRAULIC SYSTEM PRESSURE, MAKE CERTAIN THAT THE TRAVEL RANGES OF THE CONTROL SURFACES ARE CLEAR.

BEFORE PRESSURIZING HYDRAULIC SYSTEMS, CHECK THAT ALL CONTROLS ARE SET TO CORRESPOND WITH THE ACTUAL POSITION OF THE SERVICES THEY OPERATE.

BEFORE POWER IS SUPPLIED TO THE AIRCRAFT, MAKE CERTAIN THAT ELECTRICAL CIRCUITS UPON WHICH WORK IS IN PROGRESS ARE ISOLATED.

BEFORE PRESSURIZING HYDRAULIC SYSTEMS, MAKE CERTAIN THAT HYDRAULIC SYSTEM UNDER MAINTENANCE HAS BEEN ISOLATED.

NOTE : Do not mix Material No. 04-004 with Material No. 04-022. You can use Material No. 04-022 as an alternative to Material No. 04-004. Clean and degrease the parts before you use Material No. 04-022.

1. Equipment and Materials

ITEM	DESIGNATION
A. C22646	Safety Pin
B. 98A32501005000	Pin - Rigging, Wheel Steering Control
C. C47598	Locating Pin
D. C47945	Extractor
E.	Access Platform 2 m - 2.60 m (6 ft. 7 in. - 8 ft. 7 in.)
F.	Safety Barriers
G.	Warning Notices
H.	Hydraulic Fluid Container
J.	Blanking Plugs
K.	Circuit Breaker Safety Clips
L	Hose
M. Material No. 04-004	Common Greases (Ref. 20-31-00)
N. Material No. 04-022	Common Greases (Ref. 20-31-00)
P. Material No. 09-001	Sealants (Ref. 20-31-00)
Referenced Procedures	
- 07-12-00, P. Block 1	Jacking for Wheel Change
- 12-12-29, P. Block 1	Hydraulics
- 24-41-00, P. Block 301	AC External Power Control
- 29-10-00, P. Block 301	Main Hydraulic Power - Pressurization/ Depressurization
- 29-14-00, P. Block 301	Hydraulic Reservoir Pressurizing System
- 29-21-00, P. Block 301	Green Auxiliary Power
- 32-12-11, P. Block 301	Main Gear Main Door - (Ground Door(s) Opening)

ITEM	DESIGNATION
- 32-22-11, P. Block 301	Nose Gear Main Door - (Ground Door(s) Opening)
- 32-22-15, P. Block 401	Nose Gear Leg Door
- 32-51-00, P. Block 501	Steering

2. Procedure

A. Job Set-Up
(Ref. Fig. 401)

(1)On panel 4VU
- make certain that landing gear control lever is in **DOWN** position and prohibit its operation by displaying a warning notice.

(2)Between First Officer's and Third Occupant's seats
- make certain that landing gear Free Fall extension control handle is in Normal position and prohibit its operation by displaying a warning notice.

(3)Open, safety and tag the following circuit breaker :

PANEL	SERVICE	IDENT.	LOCATION
133VU	HYDRAULIC/NOSE/WHEEL/STRG	1GC	333/T53

(4)Position access platforms.
(5)Position safety barriers prohibiting access to gear door travel ranges.

WARNING : MAKE CERTAIN THAT THE DOOR TRAVEL RANGES ARE CLEAR.

(6)Open main gear left door and nose gear doors. (Ref. 32-12-11, P. Block 301 and 32-22-11, P. Block 301).

WARNING : WHEN DOORS ARE OPEN MAKE CERTAIN THAT SAFETY COLLARS ARE POSITIONED ON DOOR ACTUATING CYLINDERS.

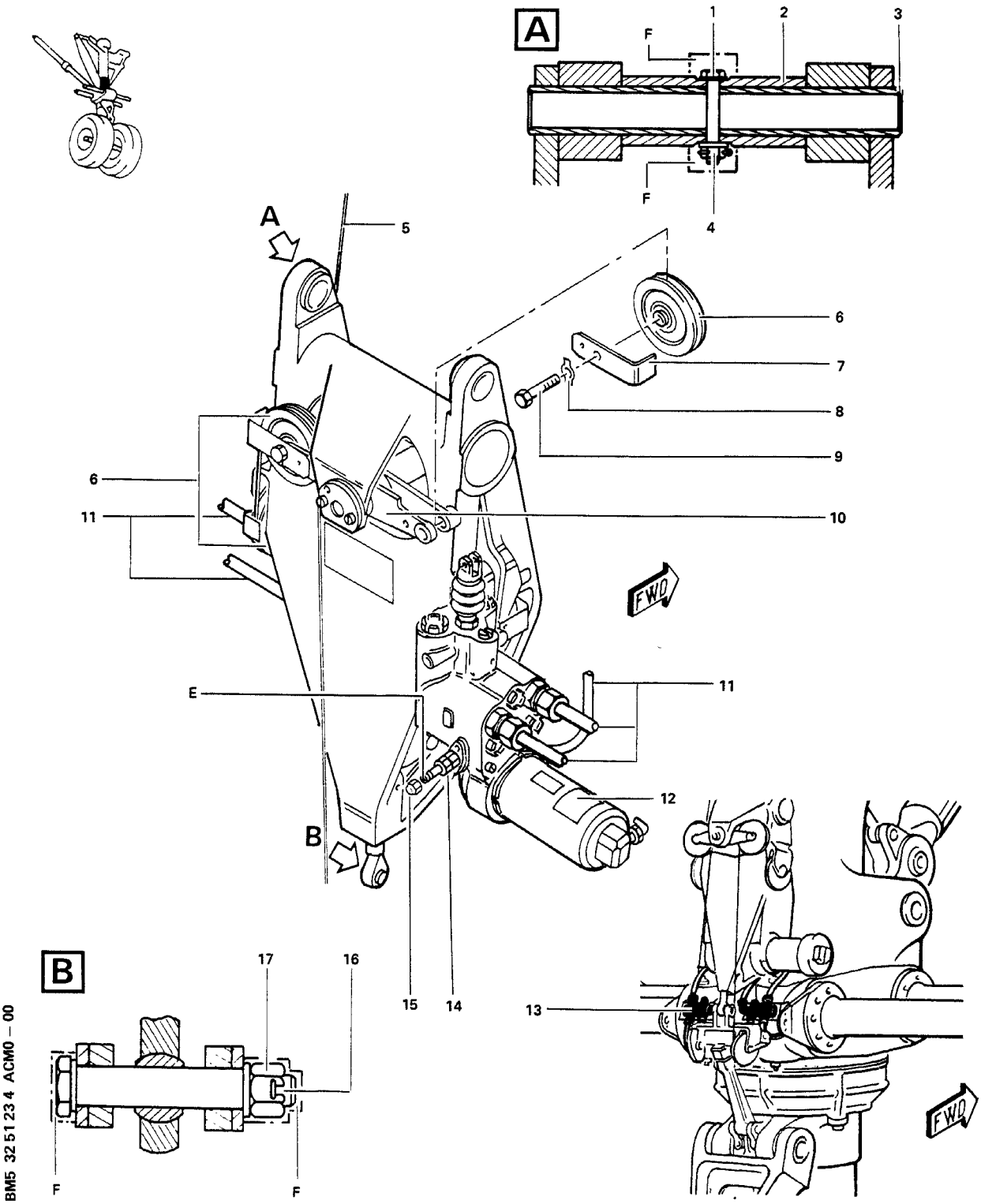
(7)Lift the aircraft at nose gear by means of wheel changing jack (Ref. 07-12-00, P. Block 1).

CAUTION : MAKE CERTAIN THAT NOSE WHEEL MOVEMENT IS UNIMPEDED BY JACK.

(8)Depressurize Green hydraulic reservoir (Ref. 29-14-00, P. Block 301) and prohibit its pressurization by displaying a warning notice
- on panel 429VU to prohibit APU starting
- on reservoir pressurization connector.

(9)Depressurize Green hydraulic system (Ref. 29-10-00, P. Block 301) and prohibit its pressurization by displaying warning notice
- on Green system ground connectors
- on panel 427VU to prohibit operation of Green electric pumps (ELEC PUMPS pushbutton switch)

(10)Place the ground towing control lever in Towing position and secure it with the safety pin C22646.
(11)Remove leg door (Ref. 32-22-15, P. Block 401).
(12)Remove transfer box (13), fitted with cable bundles, to gain access to lower attach pin (17).
(13)Using a spatula remove Material No.09-001 taking care not to damage surface protective finish.
(14)Bleed steering distributor valve accumulators (12).
(a)Remove valve cap (15).
(b)Connect a hose to union (E), loosen nut (14) to open bleed valve and recover hydraulic fluid.



Nose Gear - Steering Control
Figure 401

(c)When fluid flow stops, disconnect hose from union (E) and tighten bleed valve nut (14).

(15)Disconnect previously marked hydraulic lines (11) and blank off.

(16)Remove floor panel KF in zone 122. Cut turnbuckle lockwires at STA1236(FR15a) and slacken off all steering control cables (5).

(17)Remove pulleys (6) from steering control.
Unsafety and remove screws (9), remove lockwashers (8), cable protective covers and remove pulleys.

(18)Remove control cables.

B. Removal

(1)Disconnect steering control at its lower attach point. Remove cotter pin and nut (18), retain washer and drive out pin (17).

(2)Disconnect steering control at its upper attach point. Remove cotter pin and nut (4); retain washer and remove screw (1).
Drive out pin (3) with extractor C47945 and retain spacer (2).

(3)Remove steering control.

C. Preparation of Replacement Component

NOTE : The replacement steering control is filled with aircraft system hydraulic fluid (Ref. 20-31-00)

(1)Depreserve the replacement steering control and check its condition.

(2)If replacement component is supplied without hydraulic connectors etc, recover the connectors installed in the removed component, clean and check them for correct condition and install replacement component using new seals.

D. Installation

(1)Position steering control and connect at upper attach point as follows :

(a)Install spacer (2), insert pin (3) and using locating pin C47598 align rigging holes with spacer holes.

(b)Install screw (1), install washer, tighten nut (4) and TORQUE to between 0.6 and 0.7 m.daN (53 and 62 lbf.in.). Safety with a cotter pin.

(2)Connect steering control at its lower attach point.
Install pin (17), washer, and nut (18): TORQUE nut (18) to between 0.9 and 1 m.daN (79.5 and 88.5 lbf.in.) and safety with a cotter pin.

(3)Install control cables (5) and attach pulleys (6). Install cable protective covers (7), new lockwashers (8), screws (9). TORQUE screws (9) to between 0.25 and 0.30 m.daN (22 and 26.5 lbf.in.). Safety screws by bending lockwasher tabs.

(4)Immobilize control lever (10) on steering control by inserting rigging pin 98A3250100500 in hole provided.

(5)Tension control cables (Ref. 32-51-00, P. Block 501).
Install floor panel KF zone 122.

(6)Remove control lever rigging pin.

(7)Install transfer box (13) with its screws.

(8)Connect hydraulic lines (11) at their respective locations.

(9)Pressurize hydraulic reservoirs (Ref. 29-14-00, P. Block 301).

(10)Remove safety clip and tag and close circuit breaker 1GC

(11)On CENTER CONTROL PEDESTAL panel 9VU

- make certain that HP fuel shut-off valves are in OFF position

(12)Open, safety and tag the following circuit breakers :

PANEL	SERVICE	IDENT.	LOCATION
133VU	ENGINES/ENG1/FUEL HP VALVE/CTL	3KC	333/T69
133VU	ENGINES/ENG2/FUEL HP VALVE/CTL	4KC	333/T70

(13)Remove safety pin C22646 and make certain that the control lever is in the "Normal" position.

WARNING : MAKE CERTAIN THAT DOOR TRAVEL RANGES ARE CLEAR.

(14)Close nose and left main landing gear doors (Ref. 32-12-11, P. Block 301 or 32-22-11, P. Block 301).

(15)Bleed steering distributor valve (12) as follows :

(a)Energize the aircraft electrical network (Ref. 24-41-00, P. Block 301). Make certain that electronics racks ventilation is correct.

(b)Make certain that Green auxiliary system is pressurized (Ref. 29-21-00, P. Block 301).

(c)Connect a hose to union (E).

(d)Slowly loosen bleed valve nut (14) to open valve. Bleed hydraulic fluid until it is free from air bubbles.

(e)Tighten bleed valve nut (14) and disconnect hose from union (E).

(f)Install valve cap (15).

(16)Shut down Green auxiliary system hydraulic supply (Ref. 29-21-00, P. Block 301).

(17)De-energize the aircraft electrical network (Ref. 24-41-00, P. Block 301).

(18)Coat parts referenced in F with Material No.09-001.

(19)Install leg door (Ref. 32-22-15, P. Block 401).

(20)Adjust steering control (Ref. 32-51-00, P. Block 501).

(21)Remove safety clips and tags and close circuit breakers 3KC, 4KC

E. Test

(1)Carry out functional test of steering hydraulic system (Ref. 32-51-00, P. Block 501).

F. Close Up

(1)Remove hydraulic fluid container.

(2)Make certain that working area is clean and clear of tools and miscellaneous items of equipment.

(3)Check fluid level in Green reservoir
Top up if required (Ref. 12-12-29, P. Block 1).

(4)Remove warning notice.

(5)Close access doors, remove access platform and safety barriers.

CAUTION : MAKE CERTAIN THAT AREA UNDER THE AIRCRAFT IS CLEAR

(6)Lower nose wheels onto ground and remove wheel changing jack (Ref. 07-12-00, P. Block 1).

(7)Remove all ground handling and maintenance equipment standard and special tools, together with ground power and replenishing equipment, all access

equipment and miscellaneous items.

INDICATING AND WARNING - DESCRIPTION AND OPERATION

1. General (Ref. Fig. 001)

A. Two indicators respectively located on the center instrument panel and overhead panel, supplied with **EMERGENCY** and **NORMAL 28VDC** and connected to system 1 and system 2 microswitches and proximity detectors provide the following indications for each of the three gears:
- Door not uplocked (the 2 nose gear doors) : amber **DOOR** legend
- Gear not locked in selected position (disagree) : red **UNLK** legend
- Gear downlocked : Green arrow.

B. The following warnings are generated and displayed on the L **ECAM** display unit with the associated corrective action :
- Incorrect shock absorber or bogie beam configuration in flight.
- SYS 1 or 2 gear lock indicating or retraction safety failure.
- Gear not uplocked or downlocked.
- Gear not downlocked in approach (< 750 ft).
- Gear not downlocked in landing configuration.

R

The flight crew is alerted by illumination of **MASTER CAUTION** light on **CAPT** and **F/O** main instrument panels **3VU** and **5VU** and activation of single chime.

C. The last two warnings are also accompanied by illumination of the red arrow on the landing gear control lever switch unit. The last warning can be simulated by pressing the **WARN TEST** pushbutton switch and is accompanied by a repetitive chime which can be inhibited via the **EMER AUDIO CANCEL** switch.

D. In Free Fall extension mode, placing the landing gear Normal control lever in **DOWN** position prevents the red **UNLK** legends remaining on after gear downlock.

E. If necessary gear downlock can be checked visually :
- main gear : from the passenger compartment by means of two studs protuding from the wing above each main gear.
- Nose Gear : from the avionics compartment where a viewing window serves to check a visual indicator on the nose gear telescopic drag strut.

(Ref. Fig. 002)
(Ref. Fig. 003)
(Ref. Fig. 004)

FIN	FUNCTIONAL DESIGNATION	PANEL	ZONE	ACCESS DOOR	ATA REF.
2GA	SWITCH UNIT - L/G CTL LEVER	4VU	212		32-31-11
10GA	SW - LDG GEAR/POSITION DET/SYS1 SYS2	4VU	210		
	VISUAL INDICATOR - NOSE GEAR		711		
	ANNUNCIATOR PNL - L/G AND DOOR	4VU	211		
26GB	MSW - MLG UPLKD, SYS2 R		148		32-00-00

FIN	FUNCTIONAL DESIGNATION	PANEL	ZONE	ACCESS DOOR	ATA REF.
27GB	MSW - MLG UPLKD, SYS2 L		147		32-00-00
28GB	MSW - MLG DOOR, SYS2 R		148		32-00-00
29GB	MSW - MLG DOOR, SYS2 L		147		32-00-00
30GB	MSW - NLG DOOR, SYS2 R		124		32-00-00
31GB	MSW - MLG DOOR, SYS1 L		147		32-00-00
32GB	MSW - MLG UPLKD, SYS1 R		148		32-00-00
33GB	MSW - NLG DOOR, SYS2 L		123		32-00-00
34GB	MSW - MLG DOOR, SYS1 R		148		32-00-00
35GB	MSW - MLG UPLKD, SYS1 L		147		32-00-00
36GB	MSW - NLG UPLKD, SYS2		123		32-00-00
37GB	MSW - NLG DOOR, SYS1 L		123		
38GB	MSW - NLG DOOR, SYS1 R		124		
39GB	MSW - NLG UPLKD, SYS1		123		
40GB	MSW - NLG DNLKD, SYS1		711		
54GB	PROCU - PROX DET	93VU	122		32-31-71
66GB	PROX DET - MLG DNLKD, SYS1 R		741		32-00-00
67GB	PROX DET - MLG DNLKD, SYS1 L		731		32-00-00
	ANNUNCIATOR PNL - L/G AND DOOR	76VU	211		
79GB	MSW - NLG DNLKD, SYS2		711		32-00-00
80GB	PROX DET - MLG DNLKD, SYS2 R		741		32-00-00
81GB	PROX DET - MLG DNLKD, SYS2 L		731		32-00-00
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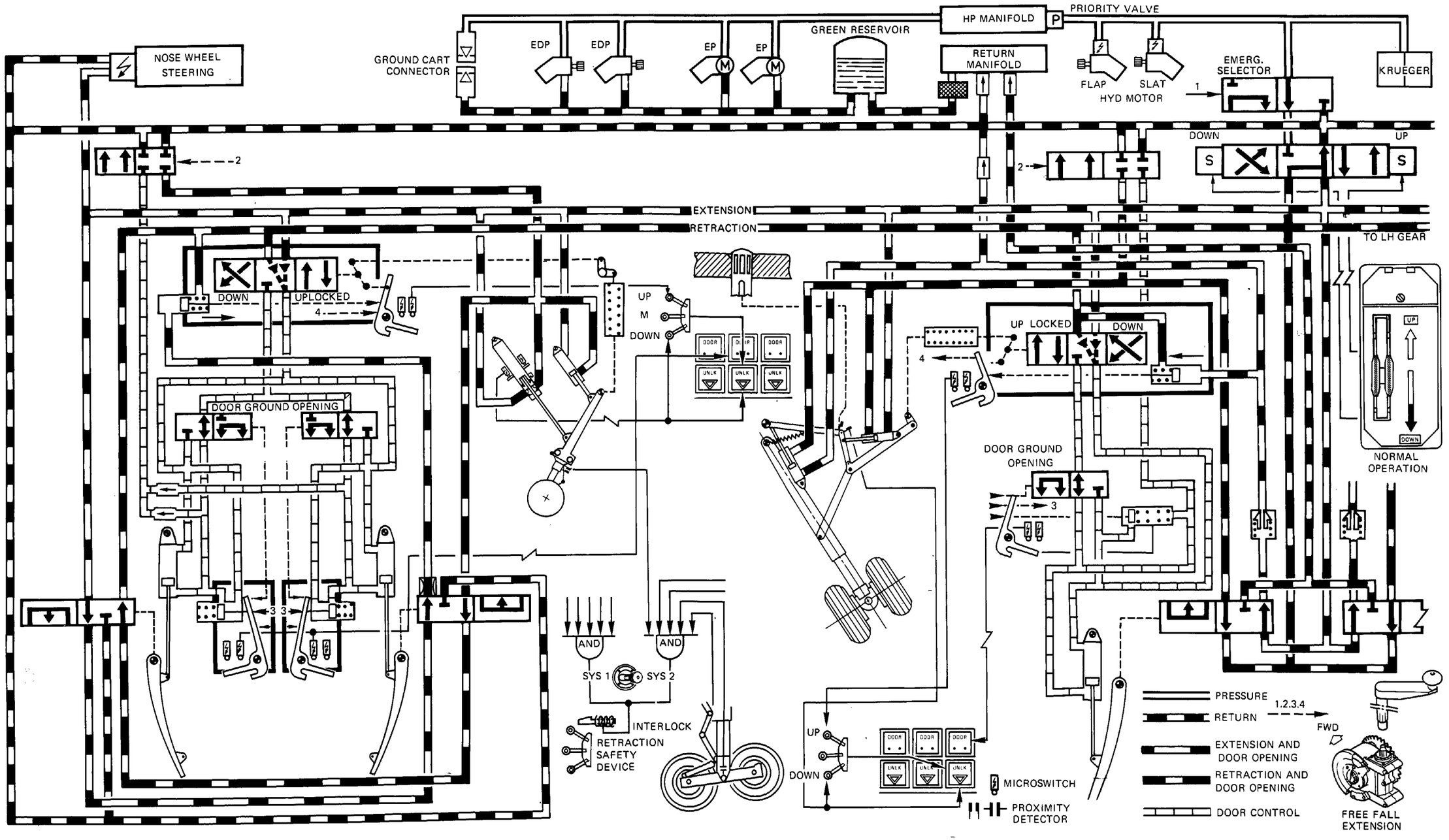

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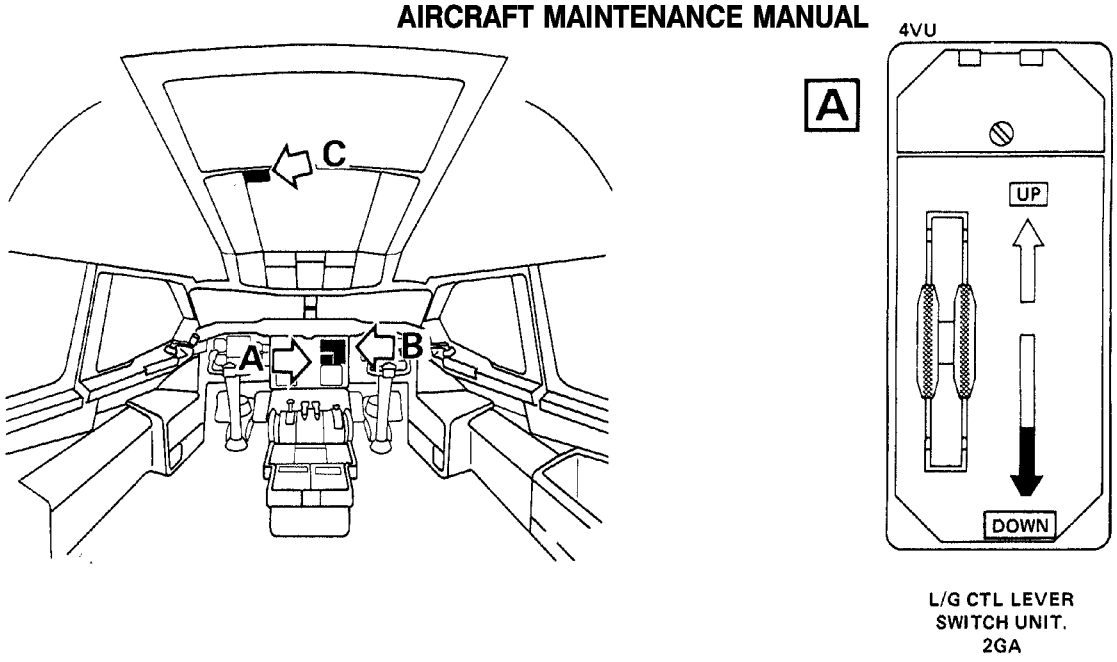
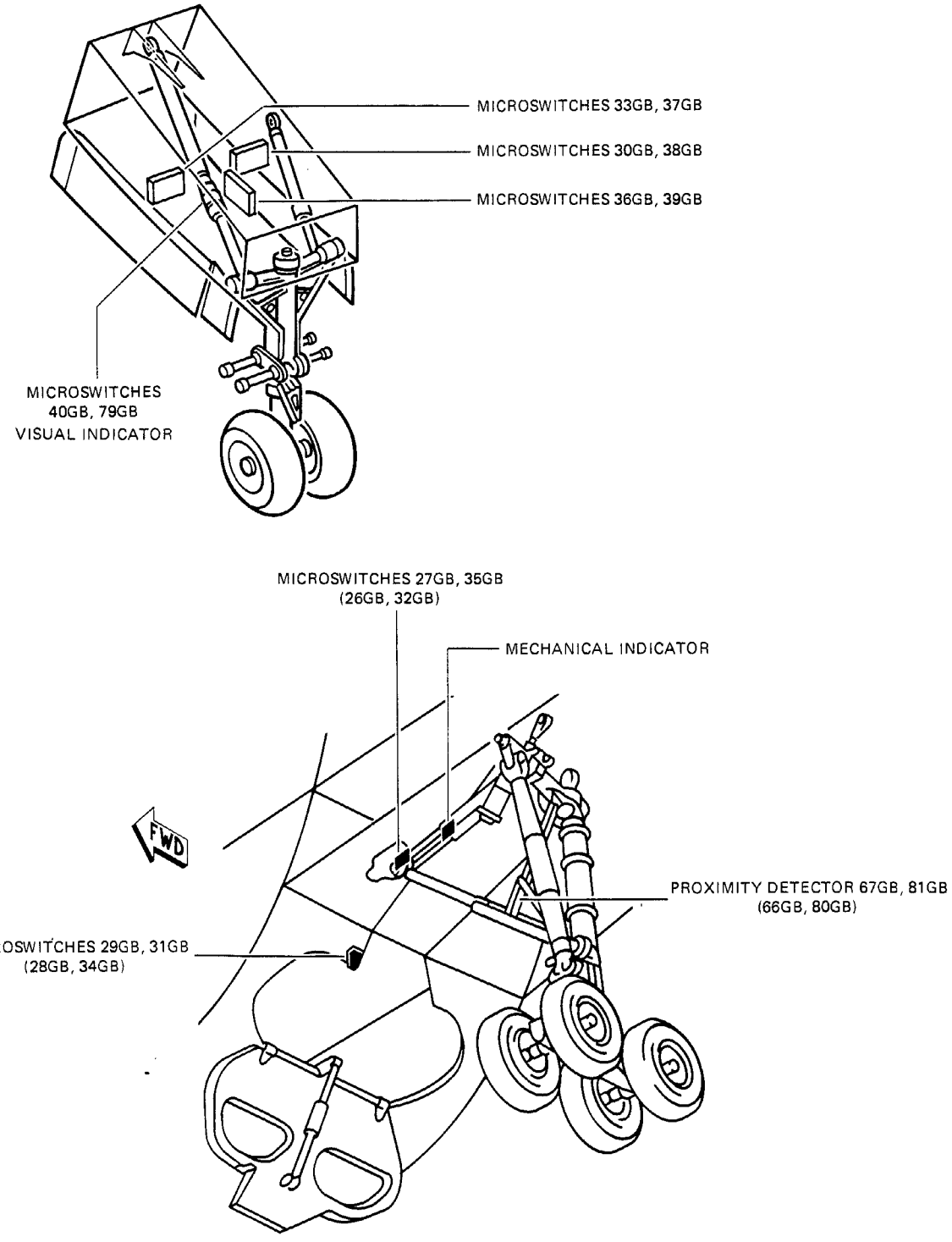
Extension and Retraction - Schematic
Figure 001



Control and Indicating Components - Flight Compartment
Figure 002



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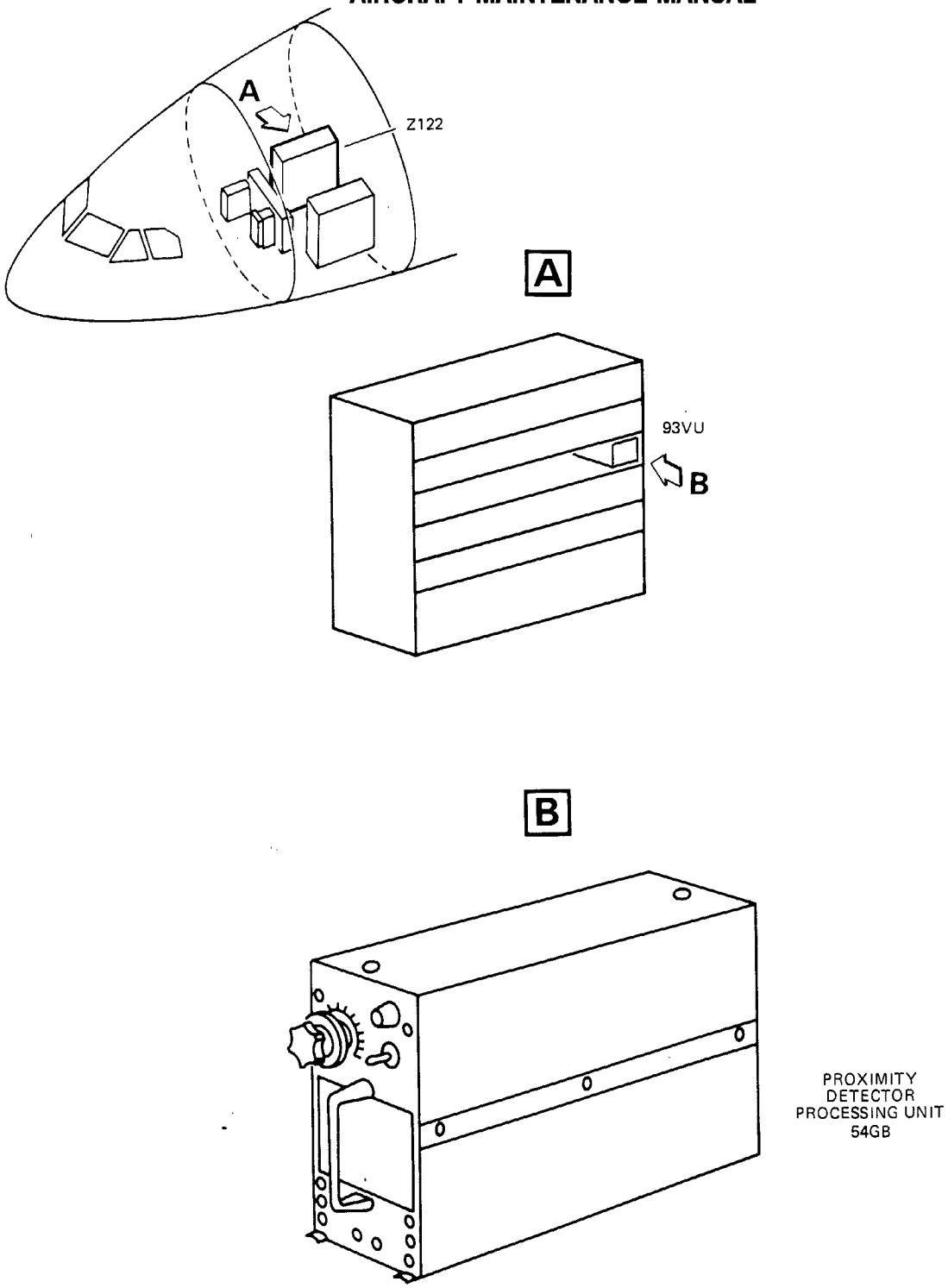
Landing Gear Position Indicating Components
Figure 003



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Proximity Detector Processing Unit 54GB
Figure 004

3. Normal Indicating (Ref. Fig. 005)

A. The annunciators are supplied with 28VDC via:
- 303PP (EMERG, SMOKE, BAR) center instrument panel
- 104PP (NORMAL BUS) overhead panel
- 305PP (ESSENTIAL BUS) red arrow on landing gear control lever switch unit.

The ground is provided as follows :
- amber DOOR legends : by the door microswitches
- red UNLK legends : by the gear uplocked microswitches (or gear downlock relays) then landing gear control lever unit microswitches.

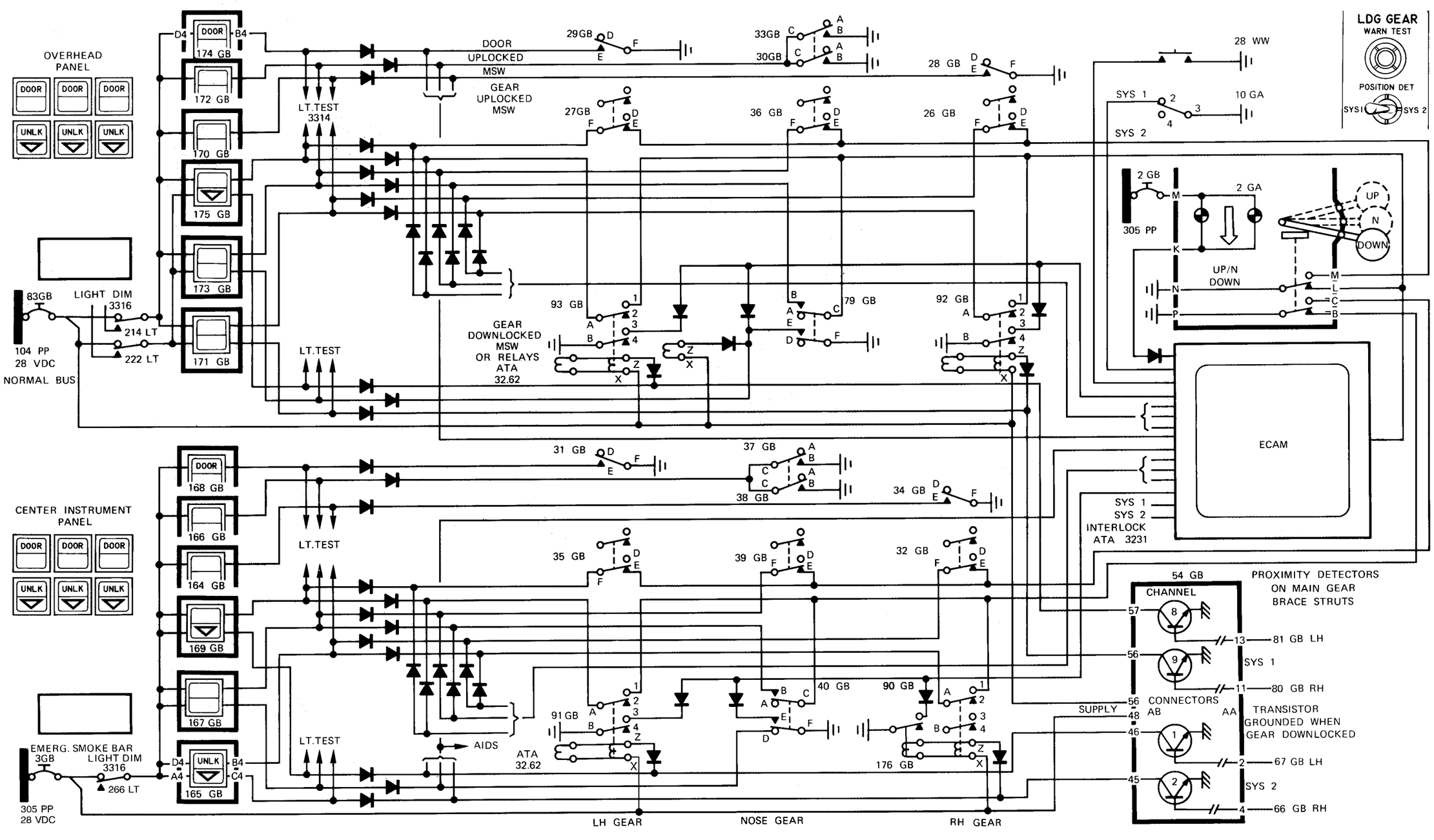
The red UNLK legends indicate "not uplocked" when the control lever is in Neutral or UP position and "not downlocked" when the control lever is in DOWN position.
- green arrows : by the nose gear downlocked (telescopic drag strut) microswitch or proximity detector processing unit (main gear downlocked)
- red arrow : by the ECAM

B. The signals below are supplied by the landing gear and used in generating warnings.

- red UNLK legends (Disagree) on	SYS1 and SYS2	6
- shock absorbers not extended and bogie beams not aligned	SYS1 and SYS2	2
- POSITION DET switch set to	SYS1 or SYS2	1
- landing gear control lever in DOWN position or not		1
- WARN TEST pushbutton switch pressed (in)		1
- nose gear downlocked		1

4. Visual Indicating

R Gear downlocking can be checked from the avionics compartment and the cabin by means of mechanically controlled visual indicators.
(Ref. Fig. 006)



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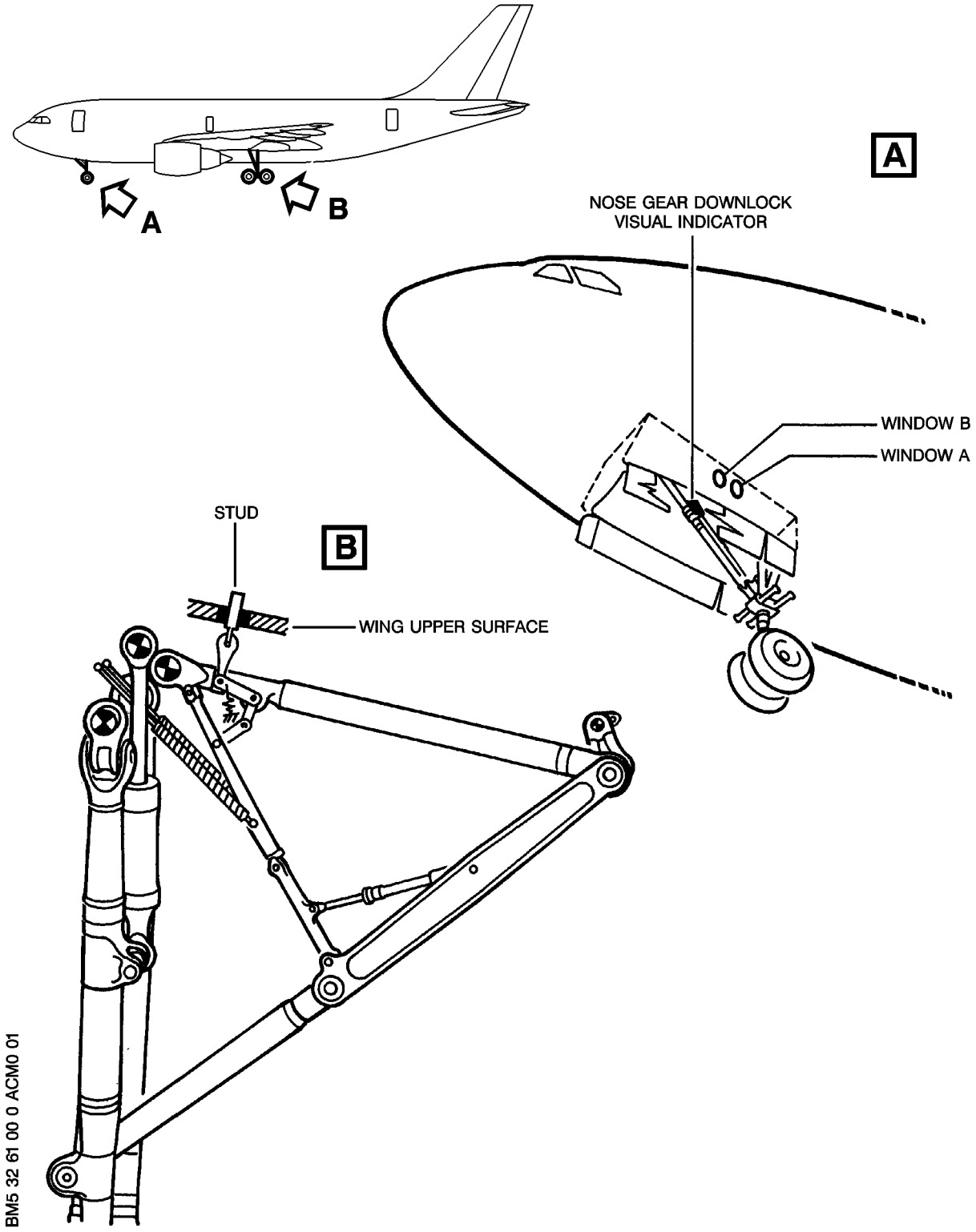
Landing Gear and Door Position Indicating
Figure 005

R



Landing Gear Visual Indicating
Figure 006

R

1. Operational Test

WARNING : CHECK THAT THE LANDING GEAR GROUND SAFETIES INCLUDING WHEEL CHOCKS ARE IN POSITION.

BEFORE APPLYING OR RELIEVING HYDRAULIC SYSTEM PRESSURE, MAKE CERTAIN THAT THE TRAVEL RANGES OF THE CONTROL SURFACES ARE CLEAR.

BEFORE PRESSURIZING HYDRAULIC SYSTEMS, CHECK THAT ALL CONTROLS ARE SET TO CORRESPOND WITH THE ACTUAL POSITION OF THE SERVICES THEY OPERATE.

A. Reason for the Job

(1)Annunciator light test.
(2)Warning test using LDG GEAR/WARN TEST pushbutton switch.
(3)Warning test with SYS1 then SYS2 selected.

B. Equipment and Materials

ITEM	DESIGNATION
Referenced Procedure - 24-41-00, P. Block 301	AC External Power Control

C. Procedure

(1)Job set-up

(a)Make certain that circuit breakers GB associated with extension and retraction system and circuit breakers LP associated with annunciator light test circuit are closed.
(b)Make certain that landing gear control lever is in DOWN position.
(c)Energize the aircraft electrical network (Ref. 24-41-00, P. Block 301). Make certain that electronics racks ventilation is correct.
- On panel 76VU, on annunciators 171GB, 173GB and 175GB check that green arrows are on.

(2)Test

(a)Annunciator light test

ACTION	RESULT
1. On ANN LT section of panel 436VU - place TEST/BRT/DIM switch in TEST position	On panel 400VU, - on annunciators 164GB, 166GB and 168GB, DOOR legends come on amber - on annunciators 165GB, 167GB and 169GB red UNLK legends and green arrows come on. On panel 76VU, - on annunciators 170GB, 172GB and 174GB DOOR legends come on amber - on annunciators 171GB, 173GB and 175GB red UNLK legends and green arrows come on.

ACTION	RESULT
	On panel 4VU, - on landing gear control lever switch unit 2GA, DOWN arrow light comes on.
2. On panel 436VU - place TEST/BRT/DIM switch in BRT position	On panel 76VU, - on annunciators 165GB, 167GB and 169GB only green arrows remain on. On panel 400VU, - on annunciators 171GB, 173GB and 175GB only green arrows remain on.
3. Place TEST/BRT/DIM switch in DIM position	- Green arrows are dimmed.
4. Place TEST/BRT/DIM switch in BRT position	- Brightness of green arrows returns to normal.

(b)Warning test using LDG GEAR/WARN TEST pushbutton switch.

ACTION	RESULT
1. On panel 400VU - press and hold LDG GEAR/WARN TEST pushbutton switch	On panel 4VU, - on landing gear control lever switch unit 2GA DOWN arrow light comes on. On panel 8VU, - on Captain and F/O main instrument panels 3VU and 5VU, MASTER WARN lights flash. - Repetitive chime is activated. On left ECAM display unit. - following message is displayed : L/G (red) L/G NOT DOWN (red)
2. On panel 417VU R - operate AUDIO EMERGENCY CANCEL switch	- Repetitive chime stops - The other warnings remain.
3. On panel 400VU - release LDG GEAR/WARN TEST push-button switch	On panel 4VU, - on landing gear control lever switch unit 2GA DOWN arrow light goes off. On panel 8VU, - on Captain and F/O main instrument panels 3VU and 5VU, MASTER WARN

ACTION	RESULT
	lights go off. On L ECAM display unit, - following is no longer displayed : L/G L/G NOT DOWN

(c)Warning test with SYS1 then SYS2 selected.

ACTION	RESULT
1. On panel 400VU, - place LDG GEAR/POSITION DET/SYS1/ SYS2 switch in SYS1 position	
A. On panel 133VU, - open circuit breaker 3GB (line 332/U53)	- Repetitive chime is activated On panel 4VU, - on landing gear control lever switch unit 2GA, DOWN arrow light comes on. - on Captain and F/O main instrument panels 3VU and 5VU, MASTER WARN lights flash. On L ECAM display unit, - following message is displayed : L/G (red) L/G NOT DOWN (red)
B. On panel 133VU, - close circuit breaker 3GB (line 332/U53)	- Repetitive chime stops On panel 4VU, - on landing gear control lever switch unit 2GA, red arrow light goes off. - on Captain and F/O main instrument panels 3VU and 5VU, MASTER WARN lights go off. On L ECAM display unit, - following message is no longer displayed : L/G (red) L/G NOT DOWN (red)
2. On panel 400VU - place LDG GEAR POSITION DET SYS1/SYS2 switch in SYS2 position	
A. On panel 133VU, - open circuit breaker 83GB	- Repetitive chime is activated

ACTION	RESULT
(line 331/V51)	On panel 4VU, - on landing gear control lever switch unit 2GA, red arrow light comes on. - on Captain and F/O main instrument panels 3VU and 5VU, MASTER WARN lights flash On L ECAM display unit, - following message is displayed : L/G (red) L/G NOT DOWN (red)
B. On panel 133VU, - close circuit breaker 83GB (line 331/V51)	- Repetitive chime stops On panel 4VU, - on landing gear control lever switch unit 2GA, red arrow light goes off. - on Captain and F/O main instrument panels 3VU and 5VU, MASTER WARN lights go off. On L ECAM display unit, - following message is no longer displayed : L/G (red) L/G NOT DOWN (red)

(3)Close-up
(a)De-energize the aircraft electrical network (Ref. 24-41-00, P. Block 301).

2. Functional Test

WARNING : CHECK THAT THE LANDING GEAR GROUND SAFETIES INCLUDING WHEEL CHOCKS ARE IN POSITION.
BEFORE APPLYING OR RELIEVING HYDRAULIC SYSTEM PRESSURE, MAKE CERTAIN THAT THE TRAVEL RANGES OF THE CONTROL SURFACES ARE CLEAR.
BEFORE PRESSURIZING HYDRAULIC SYSTEMS, CHECK THAT ALL CONTROLS ARE SET TO CORRESPOND WITH THE ACTUAL POSITION OF THE SERVICES THEY OPERATE.

A. Reasons for the Job
(1)Annunciator light test (Ref. Operational Test).
(2)Landing gear retraction indicating test.
(3)Landing gear extension indicating test.
(4)Standby indicating test (visual indicating).

B. Equipment and Materials

ITEM	DESIGNATION
(1)	Cart - Hydraulic Ground Power Supply
(2)	Safety Barriers
Referenced Procedures	
- 07-11-00, P. Block 1	Jacking for Aircraft Maintenance Operations
- 24-41-00, P. Block 301	AC External Power Control
- 29-10-00, P. Block 301	Main Hydraulic Power - Pressurization/Depressurization
- 32-31-00, P. Block 501	Normal Extension and Retraction

C. Procedure
(1)Job set-up
(a)On panel 4VU
- make certain that landing gear control lever is in DOWN position.
(b)Between First Officer's and Third Occupant's seats
- make certain that landing gear Free Fall extension control handle is in Normal position.
(c)Jack up to aircraft until wheels are clear of ground (Ref. 07-11-00, P. Block 1).
(d)Make certain that gear and door travel ranges are clear.
(e)Position safety barriers prohibiting access to gear and door travel ranges.
(f)Connect hydraulic ground power cart to Green hydraulic system ground connectors (Ref. 29-10-00, P. Block 301).
(g)Make certain that circuit breakers GB associated with Extension and Retraction circuit and circuit breakers LP associated with annunciator light test circuit are closed.
(h)Energize the aircraft electrical network (Ref. 24-41-00, P. Block 301).
Make certain that electronics racks ventilation is correct.
On panel 76VU :
- on annunciators 171GB, 173GB and 175GB check that green arrows are

on.
On panel 400VU :
- on annunciators 165GB, 167GB and 169GB check that green arrows are on.

(2)Test
(a)Annunciator light test (Ref. Operational Test).
(b)Landing gear retraction indicating test.
1 Pressurize Green hydraulic system (Ref. 29-10-00, P. Block 301).
2 Remove safety pins from nose and main gear struts.
3 Test

ACTION	RESULT
1. On panel 4VU, - place landing gear control lever in UP position	On panel 400VU, - check that the following sequence occurs : 1) On annunciators 165GB, 167GB and 169GB, the red UNLK legends come on (control lever/gear position disagree). 2) On annunciators 164GB, 166GB and 168GB DOOR legends come on amber (opening of doors). 3) On annunciators 165GB, 167GB and 169GB green arrows go off (gear downlock release and retraction of gears). 4) On annunciators 165GB, 167GB and 169GB red UNLK legends go off (gears uplocked). 5) On annunciators 164GB, 166GB and 168GB amber DOOR legends go off (doors closed and uplocked). On panel 76VU, check that indicating sequence is identical.
2. Place landing gear control lever in Neutral position.	No change. Annunciators remain off.

4 Carry out a landing gear Normal extension (Ref. 32-31-00, P. Block 501).
5 Install safety pins on nose and main gear struts.
(c)Landing gear extension indicating test.
NOTE : The aircraft is in the gear retracted configuration.
1 Make certain that Green hydraulic system is pressurized (Ref. 29-10-00, P. Block 301).
2 Test

ACTION	RESULT
1. On panel 400VU, - place landing gear control lever	On panel 400VU, - check that the following sequence

ACTION	RESULT
in **DOWN** position	occurs : 1) On annunciators **165GB, 167GB** and **169GB** red **UNLK** legends come on (control lever/gear position disagree). 2) On annunciators **164GB, 166GB** and **168GB DOOR** legends come on amber (opening of doors gear extension). 3) On annunciators **165GB, 167GB** and **169GB** red **UNLK** legends go off and green arrows come on (gears down-locked). 4) On annunciators **164GB, 166GB** and **168GB** amber **DOOR** legends go off (doors closed and uplocked). At the end of the sequence, only the three green arrows are on (gears downlocked). On panel **76VU**, check that indicating sequence is identical.
2. Place landing gear control lever in Neutral position.	On panels **400VU** and **76VU**, the six red **UNLK** legends come on (control lever/ gear position disagree). - green arrows remain on.
3. Place landing gear control lever in **DOWN** position.	- The six red **UNLK** legends go off. Only the six green arrows remain on.

3 Install safety pins on nose and main gear struts.

(d)Standby indicating test (visual indicating).

1 Make certain that Green hydraulic system is pressurized (Ref. 29-10-00, P. Block 301).

2 Remove safety pins from main gear brace and nose gear drag struts.

3 Place aircraft in flight configuration (gears retracted)

R (Ref. 32-31-00, P. Block 501).

- on the upper surface of each wing, check that the red mechanical indicator is not visible.

4 Carry out a Normal landing gear extension.

- on panel 4VU, place landing gear Normal control lever in **DOWN** position.
- check that landing gear is sequenced normally throughout extension travel (indicating unit (s)).
- check that red mechanical indicators are visible on the upper surface of each wing.

5 In Zone 121

- Shine and electric torch through downlock indicator lighting window to illuminate mechanical indicator unit

- Check through viewing window that green mechanical indicator is visible.

6 Install safety pins in main gear brace and nose gear drag struts.

(3)Close-up

(a)Make certain that landing gear control lever is in **DOWN** position.

(b)Depressurize Green hydraulic system and disconnect hydraulic ground power cart (Ref. 29-10-00, P. Block 301).

(c)De-energize the aircraft electrical network (Ref. 24-41-00, P. Block 301).

(d)Make certain that the area under the aircraft is clear.

(e)Lower the aircraft onto its wheels (Ref. 07-11-00, P. Block 1).

3. System Test

Identical to functional test.

WARNING : CHECK THAT LANDING GEAR GROUND SAFETIES INCLUDING WHEEL CHOCKS ARE IN POSITION.

1. Reason for the Job

A. Check of indicating and warning system circuits and components

2. Equipment and Materials

ITEM	DESIGNATION
A. Material No. 16-017	Structure paints (Ref. 20-31-00)
Referenced Procedures	
- 32-00-00, P. Block 501	General
- 32-12-11, P. Block 301	Main Gear Main Door - (Ground Door(s) Opening)
- 32-22-11, P. Block 301	Nose Gear Main Door - (Ground Door(s) Opening)

3. Procedure

A. Job Set-Up
(1)Open main gear main doors (Ref. 32-12-11, P. Block 301) and nose gear main doors (Ref. 32-22-11, P. Block 301).

B. Check
(1)Overall check
(a)Check all attaching hardware
- Manually for security of nuts and screws
- Visually for correct safetying (cotter pins, tab washers, lockwire).
(b)Make certain that identification plates are correctly secured.
(2)Check of landing gear and door annunciators as well as proximity detector processing unit 54GB.
(a)Perform in-situ check of annunciators and units for correct external condition, cleanliness correct attachment and safetying.

R

(3)Check electrical wiring
(a)Check wire bundles for correct external condition and check for correct physical condition without systematic opening of bundles.
(b)Open access doors and remove readily accessible panels to gain access to wire bundles and coaxial cables. Check identification sleeves or labels, protective coatings, conduit and coverings for correct condition.
(4)Check electrical connectors and connections
(a)Check electrical connectors for correct external condition and make certain that they are correctly connected and safetied.
(b)Make certain that electrical connectors are not contamined by any fluids. Clean if necessary.
(c)Check that cable terminals are correctly secured.
(5)Check proximity detectors
(a)Check targets and sensors for cleanliness.

(b)Check that electrical connectors are correctly connected and safetied.
(c)Make certain that electrical connectors are not contaminated by any fluids. Clean if necessary.
(d)Check targets for correct alignment (Ref. 32-00-00, P. Block 501).
(6)Check gear door and gear uplock assembly microswitches.
(a)Check microswitches for cleanliness and correct condition.
(b)Check that electrical connectors are correctly connected and safetied.
(c)Make certain that electrical connectors are not contaminated by any fluids. Clean if necessary.
(7)Check mechanical indicating system.
(a)Nose gear
1 On maintenance panel 450VU, and in avionics compartment zone 122, operate switch 31LS or 32LS, check that dome light 27LM is on and
R check through the viewing windows (Zone 121) that the green mechanical
R indicator is visible.
R 2 Check gear downlock indicator and viewing windows (Zone 121) for cleanliness and correct condition (especially the condition of paint on mechanical indicator).
(b)Main gear
1 Make certain that indicators are visible above wing upper surfaces.
2 Check mechanical control for correct condition (especially condition of paint on mechanical indicators).
Ref. Material No. 16-017 for reconditioning of mechanical indicator paint.

C. Close-Up
(1)Make certain that working area is clean and clear of tools and miscellaneous items of equipment.
(2)Close access doors.
(3)Close main gear and nose gear doors (Ref. 32-12-11, P. Block 301 and 32-22-11, P. Block 301).

Ref. MMEL Sect. 1-32, item 21c. (MLG Visual Down-lock)

CAUTION : THIS PROCEDURE IS TO BE USED ACCORDING TO THE REQUIREMENTS OF THE MMEL.

WARNING : CHECK THAT THE LANDING GEAR GROUND SAFETIES INCLUDING WHEEL CHOCKS ARE IN POSITION.
BEFORE APPLYING OR RELIEVING HYDRAULIC SYSTEM PRESSURE, MAKE CERTAIN THAT THE TRAVEL RANGES OF THE CONTROL SURFACES ARE CLEAR.
BEFORE PRESSURIZING HYDRAULIC SYSTEMS, CHECK THAT ALL CONTROLS ARE SET TO CORRESPOND WITH THE ACTUAL POSITION OF THE SERVICES THEY OPERATE.
BEFORE POWER IS SUPPLIED TO THE AIRCRAFT MAKE CERTAIN THAT ELECTRICAL CIRCUITS UPON WHICH WORK IS IN PROGRESS ARE ISOLATED.
BEFORE PRESSURIZING HYDRAULIC SYSTEMS MAKE CERTAIN THAT HYDRAULIC SYSTEM UNDER MAINTENANCE HAS BEEN ISOLATED.

1. MLG Visual-Down-Lock-Indicator Pre-flight Check

A. Reason for the Job

Visual inspection of the MLG mechanical-down-lock indicator-linkage position.

B. Equipment and Materials

ITEM	DESIGNATION
(1)	Access Platform 2.60 m (8 ft. 7 in.)
(2)	Warning Notice

C. Procedure

(1) Job set-up

(a) On panel 4VU :

1 Make certain that landing-gear control-lever is in DOWN position and prohibit its operation by displaying a warning notice.

(b) Between First Officer's and Third Occupant's seats :

1 Make certain that landing-gear free-fall-extension control-handle is in Normal position and prohibit its operation by displaying a warning notice.

(c) Position access platform.

(2) Visual Inspection of the MLG Mechanical-Down-Lock Indicator-Linkage position.

(a) Do a visual inspection of the MLG mechanical-down-lock indicator-linkage position.
(Ref. Fig. 901)

1 Make certain that the linkage is in the correct position.

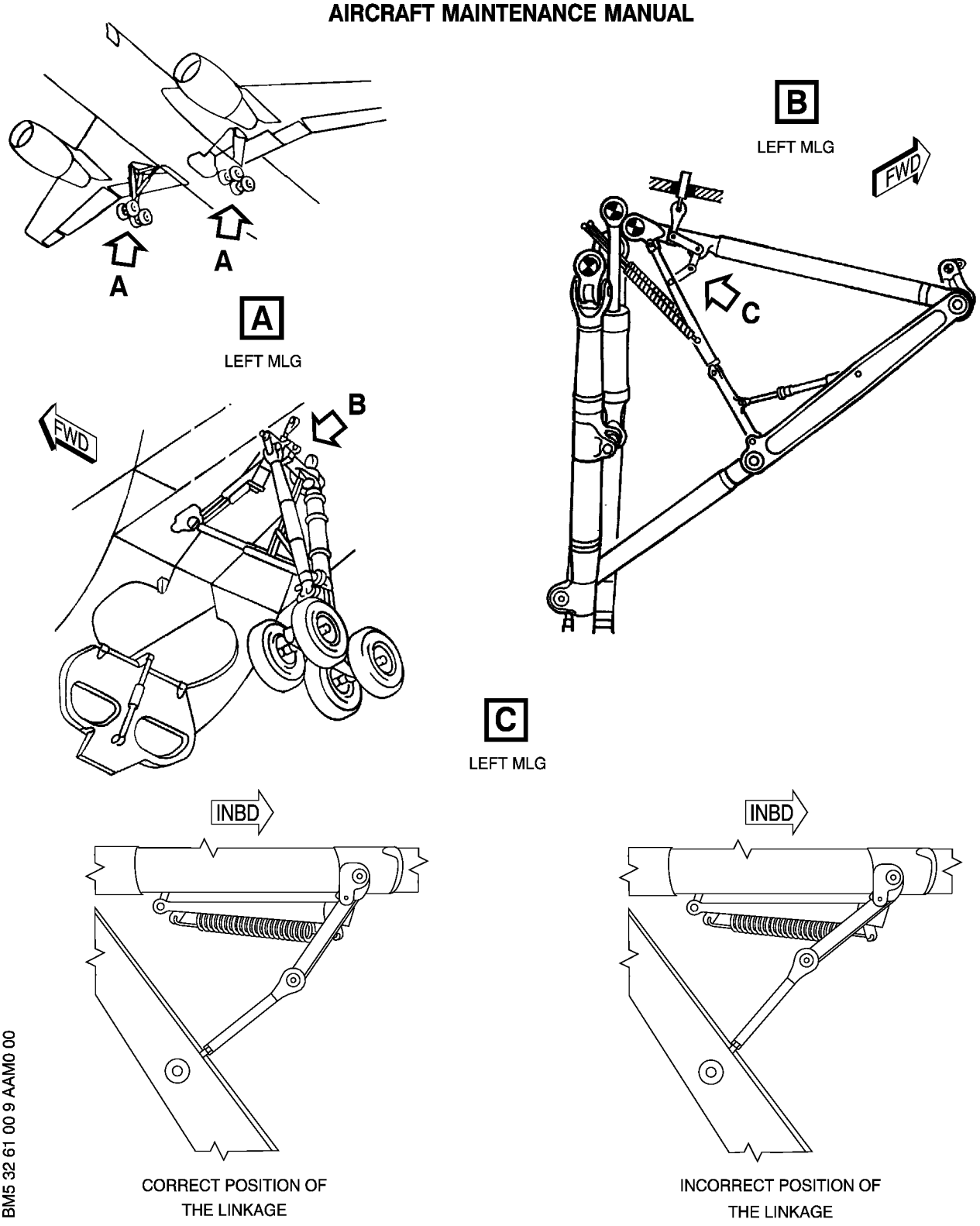
2 If the linkage is not in the correct position, manually move it in the correct position.

(3) Close-up

(a) Remove warning notices.

(b) Close access doors, remove access platforms.

(c)Remove all ground handling and maintenance equipment, standard and special tools together with ground power and replenishing equipment all access equipment and miscellaneous items.



MLG Mechanical-Down-Lock Indicator Linkage
Figure 901

R INDICATOR - MAIN GEAR DOWNLOCKED - REMOVAL/INSTALLATION

WARNING : CHECK THAT THE LANDING GEAR GROUND SAFETIES INCLUDING WHEEL CHOCKS ARE IN POSITION.
BEFORE APPLYING OR RELIEVING HYDRAULIC SYSTEM PRESSURE, MAKE CERTAIN THAT THE TRAVEL RANGES OF THE CONTROL SURFACES ARE CLEAR.
BEFORE PRESSURIZING HYDRAULIC SYSTEMS, CHECK THAT ALL CONTROLS ARE SET TO CORRESPOND WITH THE ACTUAL POSITION OF THE SERVICES THEY OPERATE.
BEFORE POWER IS SUPPLIED TO THE AIRCRAFT MAKE CERTAIN THAT ELECTRICAL CIRCUITS UPON WHICH WORK IS IN PROGRESS ARE ISOLATED.
BEFORE PRESSURIZING HYDRAULIC SYSTEMS MAKE CERTAIN THAT HYDRAULIC SYSTEM UNDER MAINTENANCE HAS BEEN ISOLATED.

1. Reason for the Job

R

2. Equipment and Materials

ITEM	DESIGNATION
A. Material No. 04-004	Common Greases (Ref. 20-31-00)
B. Material No. 11-002	Cleaning Agents (Ref. 20-31-00)
C.	Warning Notices
Referenced Procedures	
- 32-12-11, P. Block 301	Main Gear Main Door - (Ground Door(s) Opening)
R - 32-61-00, P. Block 501	Indicating and Warning

3. Procedure

A. Job Set-Up
(1)On panel 4VU
- make certain that landing gear control lever is in **DOWN** position and prohibit its operation by displaying a warning notice.

(2)Between First Officer's and Third Occupants' seats
- make certain that landing gear Free Fall extension control handle is in Normal position and prohibit its operation by displaying a warning notice.

(3)Position access platform.
(4)Position safety barriers prohibiting access to gear door travel ranges.
WARNING : MAKE CERTAIN THAT THE DOOR TRAVEL RANGES ARE CLEAR.
(5)Open main gear doors (Ref. 32-12-11, P. Block 301).
(Ref. Fig. 401)

B. Removal
(1)Removal of mechanical indicator
(a)Remove control spring (21).
(b)Disconnect control from lock link assembly.
1 Remove and discard cotter pin (17).
2 Remove nut (18) and washer (19).
3 Remove bolt (15) and retain two washers (16).

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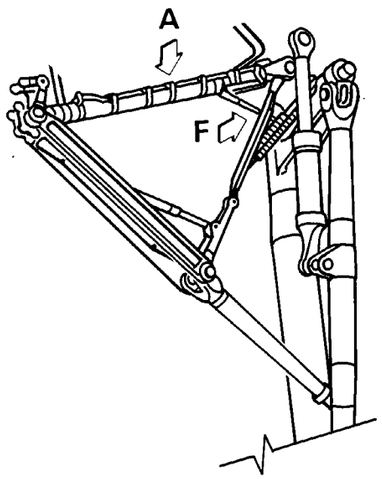

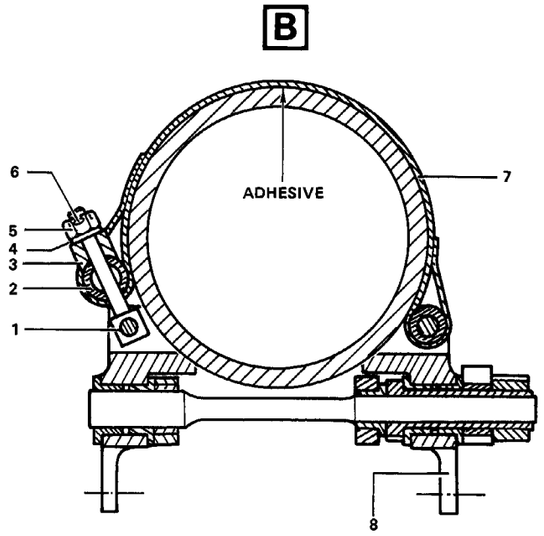

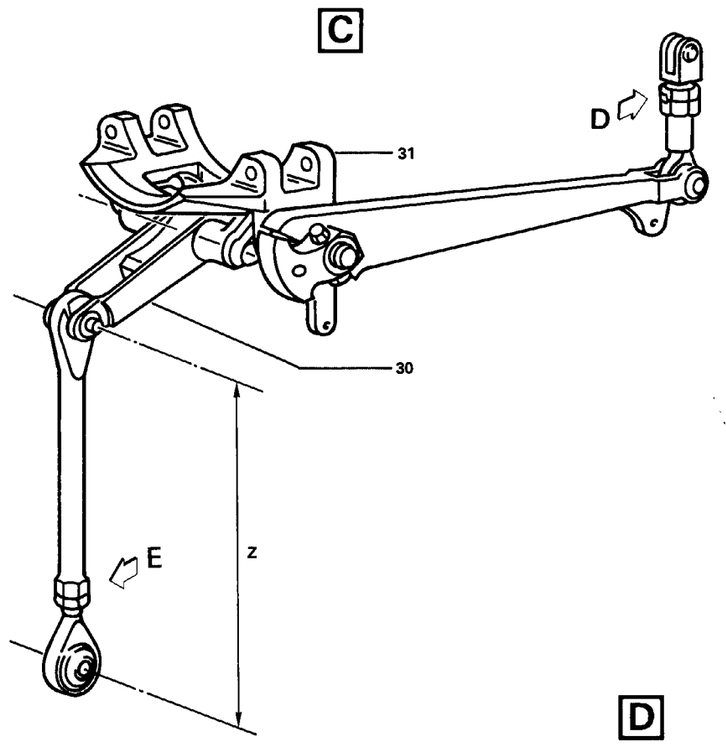

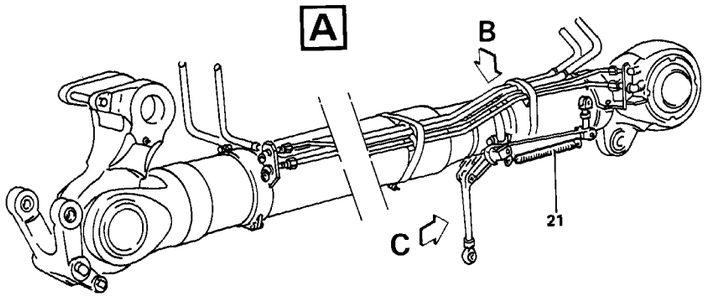

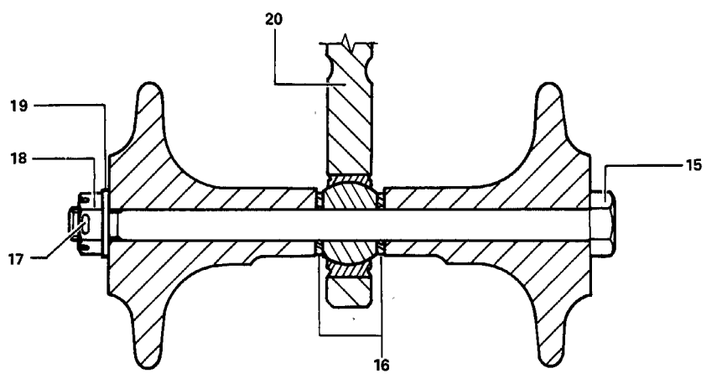

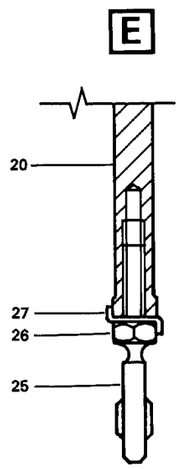

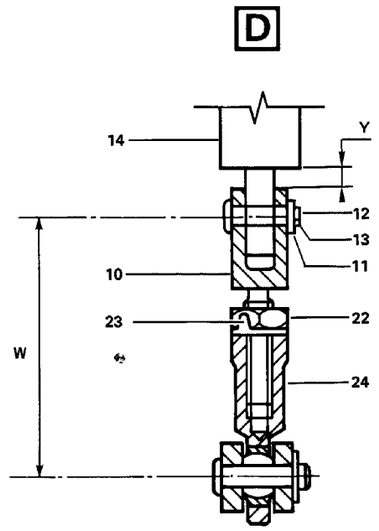

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Main Landing Gear - Mechanical Indicator
Figure 401

4 Disconnect rod (20) from mechanical indicator.

(c) Disconnect control from mechanical indicator.

1 Remove and discard cotter pin (13).
2 Remove washer (11) and pin (12).
3 Disconnect fork-end (10) from indicator (14).

(d) Disconnect control from cross brace.

1 Remove and discard cotter pin (6).
2 Remove nut (5), washer (4), and spacer (3).
3 Disengage clamp (7) from cross brace.
4 Remove control assembly.

C. Preparation of Replacement Component

(1) Depreserve replacement component. Lightly clean with a cloth soaked in Cleaning Agents (Material No. 11-002).

D. Installation

(1) Installation of mechanical indicator

(a) Connect control to cross brace.

1 Position support assembly (8) under cross brace.
2 Apply Mystic tape between cross brace and clamp and position clamp on cross brace.
3 Engage clamp (7) end in bolt (1).
4 Position spacer (3) and washer (4).
5 Install nut (5). TORQUE to between 0.45 and 0.60 m.daN (3.32 to 4.42 lbf.ft.).

(b) Connect control to mechanical indicator.

1 Adjust fork-end (10) and rod (24) assembly so that center-to-center distance W is equal to 56 mm (2.204 in.).
2 Align fork-end (10) and indicator (14) end fitting bores.
3 Position pin (12).

(c) Install control spring (21).

R (d) Install washer (12) and safety pin (12) with cotter pin (13).

R (e) Connect control to lock link assembly upper arm.

1 Adjust dimension Z.
Check that control rod (20) center-to-center distance Z is between 172 and 173 mm (6.77 and 6.81 in.).
2 Align control rod (20) with lock link assembly bores and position with a washer (16) to either side of rod end fitting.
3 Install bolt (15), washer (19) and nut (18). TORQUE nut (18) to between 0.85 and 1 m.daN (75 and 90 lbf.in.). Safety nut with cotter pin (17).
4 Check that dimension Y between upper surface of fork-end (10) and lower surface of indicator (14) body is between 5 and 10 mm (0.196 and 0.236 in.)
If this is not the case :
- disconnect control rod (20) from lever (30)
- told down tab of lockwasher (27)
- loosen nut (26)
- achieve required dimension by turning control rod (20) through half-turns (Ref. NOTE)
- tighten nut (26)

- safety washer (27)
- connect control rod (20) to lever (30).

NOTE : In order to avoid interference between lever (30) and control (31), dimension Z must not exceed 173.5 mm (7.001 in.).

E. Test

(1)Perform a standby indicating test (Ref. 32-61-00, P. Block 501).

F. Close-Up

(1)Lubricate exposed metal parts of control system with Common Greases (Material No. 04-004).
(2)Close main landing gear doors (Ref. 32-12-11, P. Block 301).
(3)Remove warning notices.
(4)Close access doors, remove access platforms and safety barriers.
(5)Remove all ground handling and maintenance equipment, standard and special tools together with ground power and replenishing equipment all access equipment and miscellaneous items.

TAIL GEAR - DESCRIPTION AND OPERATION

1. General

(Ref. Fig. 001)

The tail gear is designed to protect the aircraft rear structure during take-off or landing in excessive nose-up attitude.

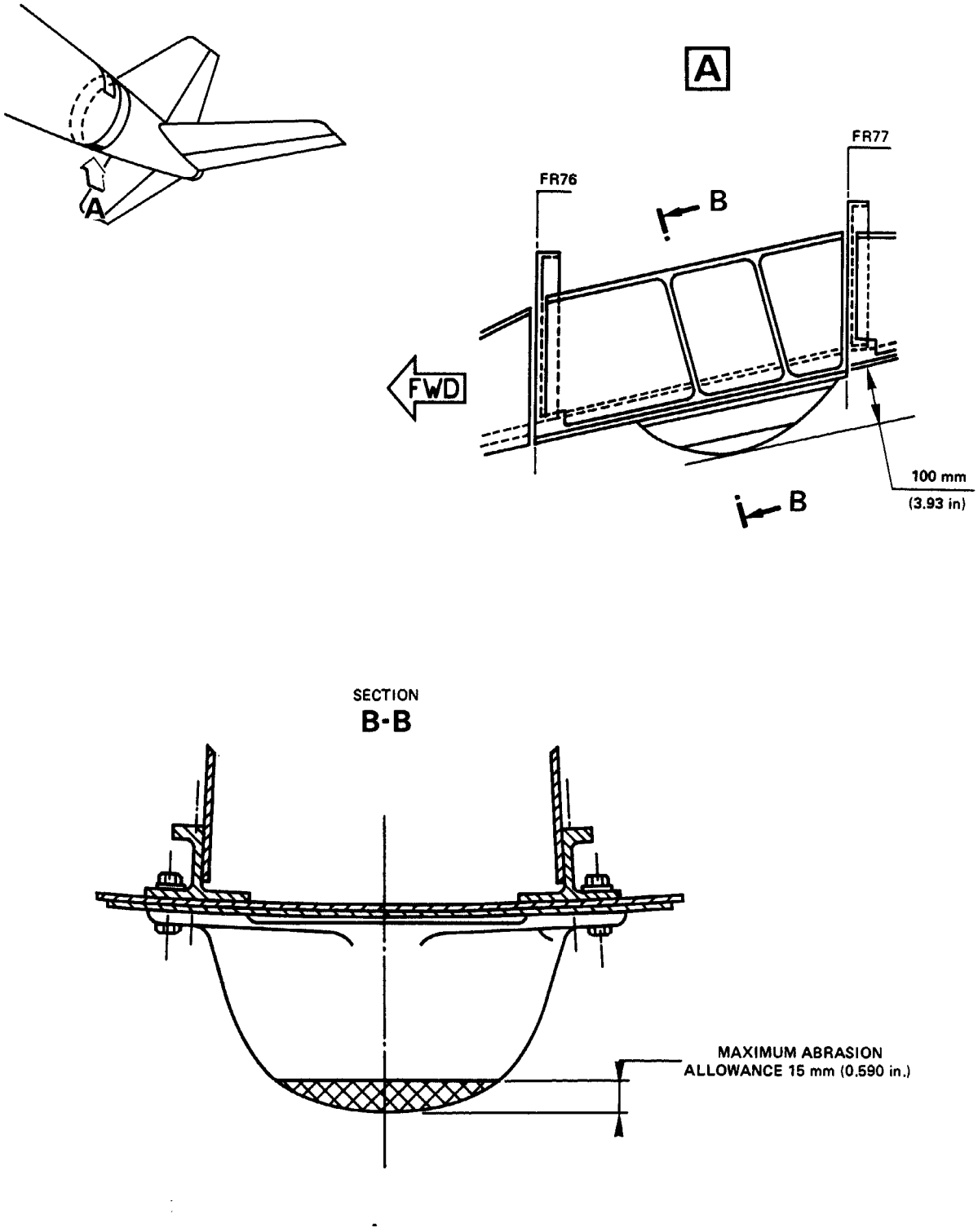
It includes a tail skid shoe which is attached to the outer skin.

R The tail gear is located between STA4120(FR76) and STA4181(FR77).

2. Description

The new design tail skid shoe (aerodynamically optimized) is bolted to the outer skin.

The body of the skid is made of steel, with an abrasion allowance of 15 mm (0.590 in). The incurred loads are introduced into reinforced frames 76 and 77 via two shear panels and are transformed to the surrounding structure.



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R

Tail Gear
Figure 001

TAIL SKID SHOE - REMOVAL/INSTALLATION

WARNING : CLEANING AGENT (MAT. NO. 11-003) IS DANGEROUS.
CAUTION : ENSURE TAIL SKID SHOE IS FULLY SUPPORTED, PRIOR TO CARRYING OUT REMOVAL OPERATION.
CAUTION : AS A TEMPORARY MEASURE FOR FLIGHT WITHOUT TAIL SKID SHOE, AND IN ORDER TO PREVENT CABIN PRESSURE LOSS, BOLTS (3), WASHERS (2) AND NUTS (1) MUST BE INSTALLED.

1. Equipment and Materials

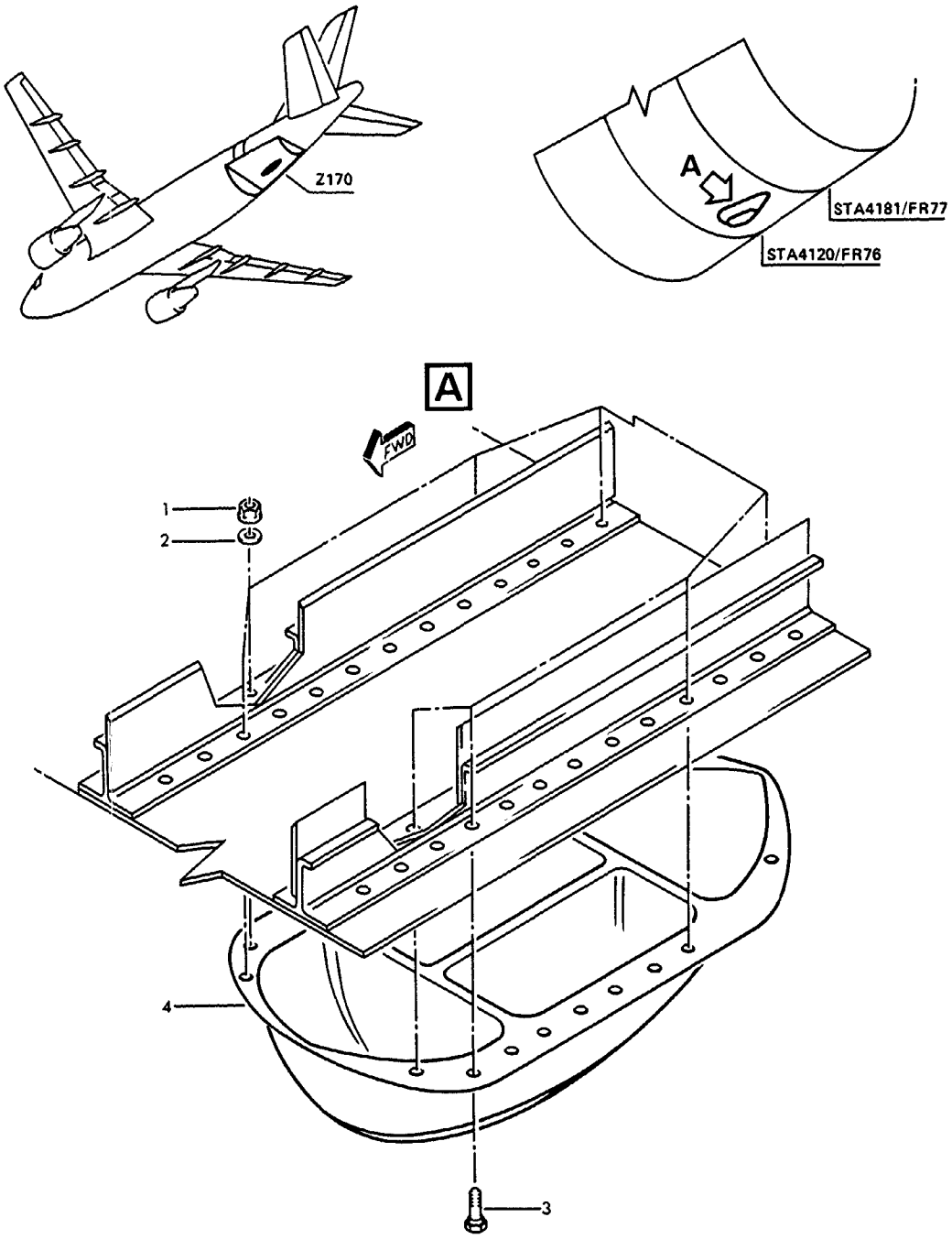
ITEM	DESIGNATION
A.	Access Platform, 3.6 m (12 ft.)
B.	Access Platform, 2.3 m (7.5 ft.)
C.	Torque Wrench, up to 3 m.daN (22.13 lbf.ft.)
D.	Clean Lint-Free Cloth
E.	Nonmetallic Scraper
F. Material No. 09-013	Sealants (Ref. 20-31-00)
G. Material No. 09-016	Sealants (Ref. 20-31-00)
H. Material No. 11-003	Cleaning Agents (Ref. 20-31-00)

Referenced Procedure
- 05-51-21, P. Block 1 — Inspection After Tail Skid Runway Strike

2. Procedure

A. Job Set-Up
(1) Position access platforms and open BULK cargo compartment door Z813.
(2) Open access door 162AZ to gain access to tail skid shoe support structure.

B. Removal
(Ref. Fig. 401)
CAUTION : ENSURE TAIL SKID SHOE IS FULLY SUPPORTED, PRIOR TO CARRYING OUT REMOVAL OPERATIONS.
(1) Remove nuts (1), washers (2) and bolts (3).
(2) Remove tail skid shoe (4).



Tail Skid Shoe
Figure 401

C. Preparation for Installation

(1)Inspect tail structure (Ref. 05-51-21, P. Block 1) if removed tail skid shoe shows signs of contact with ground.

CAUTION : AS A TEMPORARY MEASURE FOR FLIGHT WITHOUT TAIL SKID SHOE, AND IN ORDER TO PREVENT CABIN PRESSURE LOSS, BOLTS (3), WASHERS (2) AND NUTS (1) MUST BE INSTALLED.

WARNING : CLEANING AGENT (MAT. NO. 11-003) IS DANGEROUS.

(2)Remove sealant remnants from outer skin structure using cleaning agent (Mat. No. 11-003) and clean lint-free cloth. Use a nonmetallic scraper to assist removal.

D. Installation

(1)Apply a coating of sealant (Mat. No. 09-013) to contact surfaces and position tail skid shoe (4).

(2)Install bolts (3), washers (2) and nuts (1). TORQUE nuts (1) to between 2.0 and 2.5 m.daN (14.75 and 18.44 lbf.ft.).

(3)Fillet seal tail skid shoe (4) contour with sealant (Mat. No 09-016).

E. Close-Up

(1)Make certain that working area is clean and clear of tools and miscellaneous items of equipment.

(2)Close access door 162AZ.

(3)Close BULK cargo compartment door Z813 and remove access platforms.